Engaging Undergraduate Learners: Strengthening the First-Year Experience and Research Mentoring: A SACS Quality Enhancement Plan White Paper Proposal

Susan Bratton, Professor and Chair, Environmental Studies
College of Arts and Sciences

Frank Shushok, Jr., Dean for Student Learning and Engagement
Division of Student Life

Baylor University
February, 2006
I. Engaging Undergraduate Learners

A. Executive Summary

Baylor University has historically considered undergraduate education to be its primary mission. As the oldest institution of higher learning in the State of Texas, Baylor first admitted students to a basic liberal arts curriculum in 1845. While expanding to a major university incorporating professional schools and graduate degrees, Baylor University has remained a predominantly undergraduate institution. In 2005, 3,168 freshman students enrolled in seven schools or colleges, including Arts and Sciences, Business, Education, Engineering and Computer Science, Music, Nursing, Social Work, and the Honors College. While Baylor is a doctoral intensive university, undergraduates constituted 84.1 percent of a total student body of 13,014, in spring 2006.

In recent decades, Baylor has instituted curricular innovations intended to improve undergraduate learning engagement via either general education courses or the freshman-year experience. Individual schools and departments offer a wide range of experiential learning, seminars, research, and internship options. The administrative oversight of these educational venues remains dispersed, however. During the process of collecting potential Quality Enhancement Plan concepts, Baylor faculty and students repeatedly articulated the need for campus-wide organization of keystone undergraduate experiences. There is also widely held concern among faculty and staff that a substantial component of each freshman and transfer class remains disconnected from an intentional and faculty-led learning community.

The purpose of this Quality Enhancement Plan (QEP) is to establish a Center for Engaged Learning (CEL), directly under the Provost. The CEL will sponsor two integrated initiatives, identified by the SACs process as reaching the greatest number of students and stimulating the maximum improvement in pedagogical strategies across the campus. These initiatives: 1) ensure that all entering students are participants in one or more learning communities, and 2) strengthen and expand undergraduate skills through participation in original scholarship and research.

The first initiative, while retaining the most successful components of current freshman/transfer programs, will reorganize into a coherent series of options for entering students. Freshman and transfer students will choose from a variety of learning community options. These include a new general freshman and transfer seminar (University 1000), living-learning centers, or newly-created field/interest-based freshman learning communities, both residential and non-residential. All of these learning communities will include a combination of 1) shared classes, 2) coordinated and intentional programming (both social and academic), 3) enhanced student-to-student interaction centered on academic values, 4) heightened and substantive in-and-out-of classroom interaction with faculty, 5) a leadership structure that ensures desired student outcomes are being achieved through participation in such communities, and when possible, 6) shared living space in a Baylor residential facility.

These above-mentioned programs collectively will train over 150 faculty to serve as mentors and seminar leaders. About half of these faculty members will lead
University 1000 seminars while the other half will organize and teach in a spectrum of freshman learning communities. In addition, these programs will recruit and train 300 juniors and seniors to serve as peer mentors for students in their first semester at Baylor. These programs will emphasize acquisition of learning skills that will serve students throughout their Baylor career and after graduation. This “every student in a learning community” initiative will promote higher levels of engagement with educational opportunities and a sense of both group identity and of personal empowerment to accomplish academic goals. Students will have close contact with faculty and with more mature students who have similar interests and encourage reciprocity and cooperation, as well as interactive communication. Students completing the program will experience fewer academic failures, demonstrate improved study skills, and will be more likely to participate in campus cultural activities. They will be proactive in finding venues to express themselves as scholars, such as electing to participate in research.

The second initiative increases the number of students pursuing research or creative projects and provides improved support for faculty mentors through the establishment of an Undergraduate Research Initiative. This effort is designed to complement learning communities by offering linked seminars and introducing students to research in the second semester of their freshman or sophomore year. As such, students are encouraged toward earlier entry and longer participation in research tracks. The Undergraduate Research Initiative will sponsor an annual undergraduate meeting, initiate a summer research college and guide students in locating research mentors. The goals for Baylor 2012 include expanded scholarly engagement for both faculty and students. Within five years, this initiative will triple undergraduate research participation to an estimated 6 to 10 percent, double off-campus undergraduate presentation and publication and double retention of students in thesis tracks.

This five-year QEP involves all Baylor schools and colleges offering undergraduate degrees and will influence the educational outcomes for every Baylor undergraduate. The proposal builds on the current resource base available to the QEP initiatives but calls for the intentional and coordinated expansion of activities and programs that engage learning. Baylor University is experiencing a major expansion of externally-funded research with its concomitant demands for student assistants and participants. Baylor is improving undergraduate residences and adding up-to-date teaching and research space. A significant proportion of students will participate in the proposed initiatives for more than one semester. The implementation of the QEP involves the senior administration, including the provost and vice provosts, as well as division and department leaders, the faculty, and students. A coordinating committee composed of administrators, staff, faculty, and students will guide each initiative. In order to provide objective appraisal of progress, a third committee, the learning assessment committee, comprised of specialists in assessment, staff from the office of institutional research and testing, and administrators and faculty not directly involved in the initiatives will evaluate the performance and effectiveness of the entire QEP effort.
B. Overall Rationale for the QEP

1a. Student surveys and retention

In 2003, Baylor University freshman students participated in the National Survey of Student Engagement (NSSE). The NSSE is an annual assessment given to first-year and senior students in order to measure participation in educational activities strongly associated with substantive levels of student learning and personal development (Schroeder 2003). Surprisingly, freshmen at Baylor scored only in the fortieth percentile on “Active and Collaborative Learning” and “Faculty–Student Interaction” when compared to other “doctoral intensive” universities. In terms of “predicted” versus “actual” scores, Baylor freshmen underperformed on the above-mentioned measures as well as on a third, “Academic Challenge.” For an institution that deeply values providing a student-centered and active learning environment, these are unsatisfactory findings.

Like other universities, Baylor is acutely aware of the importance of retention and graduation rates. Too often, concerns about retention in higher education are financially driven. This QEP is based in the belief that retention rates are correlated to the quality of the academic environment and the university’s fulfillment of its educational mission. Retention rates are representative, in large part, of the success of an institution in advancing a culture of student learning. Research on student outcomes offers compelling data to support the assertion that students entrenched in a learning environment are also those who persist (Astin 1993; Tinto 1993; Pascarella and Terenzini 2005). “At risk” students, those historically less likely to be successful at an institution, often comprise a disproportionate percentage of retention casualties. Many educators argue that improving retention of students is a moral responsibility, consistent with a commitment to the learning of all students. Smith (2003, p. 3) perceives retention as “a rare, happy marriage of both fiscal and ethical imperatives.” Baylor University, with its distinct Christian mission, perhaps has an even more compelling motivation to address the issue of disengaged undergraduates.

The last decade of data collected by Baylor’s Office of Institutional Research and Testing indicates that Baylor has made no substantial gains in increasing its freshman retention rates. Persistence of first-year students has hovered around 83 percent. These data imply that recent innovations in the freshman curriculum, such as Chapel Fridays, have not adequately improved the freshman learning experience or generated greater motivation for completing a Baylor degree. The stagnant freshman persistence rate is compelling evidence that the matriculation and acculturation process to Baylor’s learning environment requires a substantive change if progress is to be made. At the same time, Baylor experienced record freshman enrollment in 2005. In February 2006, freshman applications were up 58.4 percent over the previous year, and Baylor began a waiting list for admission – the earliest ever. Baylor’s recent success in undergraduate recruiting deserves an engaged learning program with equal success for its freshman students. Through greater intentionality in the acculturation process of new students, this QEP will provide a nurturing learning climate, considering the needs of students from those at risk to those entering in the Honors and University Scholars programs.
1b. Changes in student characteristics

The last 10 years have marked substantive changes in the characteristics of Baylor students. Two of the most notable shifts include a decrease in the percentage of students who identify themselves as Baptists (37.6 percent in fall 2005 versus 43.4 percent in 1998) and an increase in the percentage of students who identify themselves as racial or ethnic minorities (30.3 percent in fall 2005 versus 21.3 percent in 1998). These changes, in addition to typical cultural nuances associated with generations of students, serve as a reminder that approaches to learning and engagement must be adjusted to influence new populations. In their widely acclaimed book, *Millennials Go to College*, Howe and Strause (2003, p. 144) admonish colleges and universities to understand how today’s students best learn. They write, “A college or university that fails to respond [to changes in the student population] will find itself at a disadvantage in recruiting and retaining top students—and will find that students it does recruit will be less likely to perform up to potential.” The two QEP initiatives are responses to the profiles of today’s Baylor students, who adhere to their peer group and have lofty academic expectations and ambitious career goals. Both initiatives make explicit provision for at-risk or underrepresented student populations.

1c. Baylor’s strategic planning

Although Baylor 2012, a strategic plan for academic, cultural, and facilities development, has generated controversy among the faculty and alumni, Baylor has already accomplished significant improvements in several different planning spheres. Faculty publication and pursuit of external funding have recently doubled. All new tenure-track professors arrive expecting to engage in serious scholarship. Baylor has appointed a vice provost for research and added staff to its sponsored programs office. The SAT scores and high school class rankings of entering students are improving. Initiated in 2002, the Honors College is now attracting over 300 incoming students annually, more than 10 percent of each class admitted. The students themselves publish an undergraduate research journal, *The Pulse*.

Baylor has completed the North Village Residential Community, a $33 million complex that houses 600 students, including 200 students participating in the engineering and computer science living-learning center. In February, 2006, the Baylor Board of regents approved funding to replace the aging Brooks Residence Hall with Brooks Residential Village which includes the establishment of Baylor’s first residential college. Opened in 2004, the Baylor Sciences Building offers up-to-date research and teaching laboratories as well as “smart” classrooms and an expansive common area with comfortable chairs and computer desks to attract undergraduate learners.

This QEP leverages these positive trajectories, taking advantage of the strength of Baylor faculty scholarship and of enhanced environments for living and learning. The establishment of University 1000, undergraduate learning communities and research opportunities support the strategic plan by linking the individual initiatives of Baylor 2012 with projects involving students, faculty, and student life. The QEP weaves learning communities into residential communities while simultaneously honoring Baylor’s Christian mission. Both initiatives in this proposal integrate the best of faculty scholarship with the most adventurous and motivated of student learners. Best pedagogical practices, such as inquiry-based and experiential learning, converge with
higher standards for faculty creative activity, research, and teaching. All campus curriculum initiatives engaging student learners are the necessary keystone to actualizing the goals of Baylor 2012.

C. Overall Implementation

1. Administrative oversight

In order to implement an array of all-university programs, this QEP proposes that Baylor establish an Office for Engaged Learning, as well as create a new position to direct this office. It is recommended that this office report directly to the provost. The newly-created position (which may be appointed as a vice provost, dean, or director) will have supervisory responsibility for learning community coordination (and the newly created position, director for learning communities), as well as undergraduate research initiatives (and the newly-created position of director for undergraduate research). As such, this person will act as liaison among the schools, colleges and, student life, concerning the educational aspects of all-campus undergraduate programs. The leader of the Office for Engaged Learning will be an experienced educator with background in assessment, planning, and best pedagogical practices. The office support staff is recommended to include a full-time administrative associate, a graduate assistant for peer mentoring, a graduate assistant for the learning communities, a graduate assistant for undergraduate research, and a student worker. This administrative unit will also coordinate research seminars for lower division undergraduates.

This QEP establishes three advisory committees to guide the initiatives and to evaluate their effectiveness, including:

1. The learning assessment committee reporting directly to the provost—This committee is composed of administrators and faculty not directly involved in the initiatives and experts in assessment including staff from the Office of Institutional Research and Testing. This team will review the outcomes of the initiatives and report positive and negative findings, with suggestions for improvement, to the provost and the Baylor SACS committee.

2. The coordinating committee for learning communities reporting to the director for learning communities—This committee brings campus partnerships together on a regular basis throughout the year. Membership will include administrators, student life professionals, faculty, and current students. The advisory board will assist with ongoing development of the University 1000 seminar and learning communities.

3. The coordinating committee for undergraduate research, reporting to the director for undergraduate research—This committee, also composed of administrators, faculty, student life professionals, and students, will guide the development of the undergraduate research initiative, undergraduate research meeting, and the summer research college.

This structure provides access to budgetary and academic decision makers while representing all stakeholders. All undergraduate colleges and schools will be represented
on the committees. The learning assessment committee ensures objective reporting on the progress of the initiatives.

2. Organizational Chart

In the event that the above proposed structure is too costly for Baylor, a less expensive organizational structure can be implemented. The organizational structure above represents the highest cost option while the organization structure below represents the least expensive model. Some variation between these two proposed administrative structures, however, could be adopted.
3. Administrative and Operational Space

A shortage of unoccupied administrative and faculty offices on campus makes the location of this QEP problematic. The senior administration occupies Pat Neff Hall, which lacks adequate available office space, has no large meeting rooms, and is rarely visited by undergraduates. Possible locations for the Office for Engaged Learning include: Morrison Hall, that is in the center of the campus and houses the Honors College; Sid Richardson, that is scheduled for renovations; Baylor Sciences Building, that has unfinished space and; perhaps optimal, the planned Brooks Residential Village, which will have a great hall and function primarily as an undergraduate environment. Aside from offices for directors and staff, the operational infrastructure requires meeting and work areas for student mentors and for undergraduates organizing the research
meeting and other events. Casual open floor space with a coffee service and comfortable chairs can stimulate student/staff interaction and encourage the undergraduate leadership to “hang out.” The office will need storage space for advertising, publications, poster boards, and other supplies.

II. Expanding and Strengthening the First-Year Experience through Learning Communities

A. Rationale for the Initiative

I. Models for the first-year experience

According to American Association for Higher Education’s recent study of 20 DEEP (Documenting Effective Education Practice) institutions, “the voluminous research on college student development shows that the time and energy students devote to educationally purposeful activities is the single best predictor of their learning and development. Certain institutional practices are known to lead to high levels of student engagement” (Kuh et al. 2005, p. 8). Lee Upcraft and John Gardner (1989) have advocated the particular importance of the freshman year for creating conditions that foster student success and learning. “Because of the overwhelming evidence that student success is largely determined by experiences during the freshman year…,” they advise institutions to overhaul approaches for fostering student learning by rethinking policies and services with a concentrated emphasis on the first semester of a student’s university career. The benefit to addressing the needs of first-year students may be manifold. Raymond Smith, Associate Vice Chancellor for Academic Affairs at Indiana University, wrote about his campus’s efforts to improve the experience for first-year students, including retention rates. Although the campus made monumental gains in key learning outcomes, the most surprising result was the change in the complete campus academic climate and culture. Smith (2003, p. 8) asserts, “Finally, we [Indiana University] have found, somewhat to our surprise, that a retention program, however pragmatic its original aims, has had collateral benefits for our faculty as it has for our students.”

The current literature finds several course structures are effective for improving freshman learning-engagement. These include:

- **First Year Seminars.** One type of intervention for freshman students that has proven to be especially effective in increasing persistence and academic success is the “first-year seminar,” or FYS. Pascarella and Terenzini (2005, pp. 400-401) have found, in their widely acclaimed 800-page summary of research on college learning outcomes, that despite their diversity in curriculum and structure, FYS offerings “produce uniformly consistent evidence of positive and statistically significant advantages to students who take the courses.” Moreover, “first-year seminars appear to benefit all categories of students.” Baylor University’s Honors College, as discussed below, has already implemented an FYS sequence.

- **Peer Mentoring.** A second major method of enhancing student learning-engagement is integrating peer mentoring into matriculation programs in order to identify and build on the strengths of students. Alexander Astin
who leads the UCLA Higher Education Research Institute, concludes, “The single most important environmental influence on student development is the peer group. By judicious and imaginative use of peer groups, a college or university can substantively strengthen its impact on student learning and personal development.” Not only do freshman students benefit from such a program, but so do the upper classification students, as they learn the skills necessary for engaging students whom they mentor. Baylor presently makes limited use of peer mentoring in the Writing Center and in tutoring sponsored by the Success Center.

- **Learning communities and interest groups.** A third practice promoting student engagement is the “learning community.” Engstrom et al. (2002, p. 385) identify a learning community as a program “... designed to enhance the academic and social coherence of the curriculum by transforming the ways students experience both course work and the process of learning.” One way that this transformation takes place is through a learning community where students enroll in a block of classes based on their proposed field of study (such as pre-healthcare or pre-business), share common residence hall space, and receive more intensive and coordinated interaction with faculty members outside of the classroom. According to Astin (1993), this structured environment “can be used to build a sense of group identity, cohesiveness, and uniqueness that encourages continuity and the integration of diverse curricular and co-curricular experiences.” Noel-Levitz (1985) asserts that the integrated learning experience fostered by these communities facilitates higher levels of engagement, increased persistence, and improved academic performance, as well as greater intellectual energy and confidence among students.

These pedagogical strategies focus on integrating students by creating structures for better faculty/student interaction, peer leadership, and intentional messaging about academic success. Even with compelling national data about the value of such efforts, Baylor has only partially implemented this potential repertoire of teaching strategies for fully engaging freshman.

2. Baylor’s current freshman experience

The portion of the current Baylor First-Year Experience organized by Student Life centers around three key but disjointed events: Orientation, Welcome Week, and Chapel Fridays.

- **Orientation** provides students an introduction to the academic expectations of the university while offering students the opportunity to meet with an academic advisor, register for classes, and become familiar with the many resources at Baylor designed to enhance the learning experience.

- **Welcome Week** is a non-required time of interaction and acculturation within student-led groups that are formed out of residence halls. There is little faculty participation in Welcome Week, and student involvement becomes increasingly inconsistent as the week progresses.
• **Chapel Fridays.** A third component in the current freshman experience is Chapel Fridays, where faculty and staff members conduct a discussion of issues relevant to university newcomers. Student Life coordinates Chapel Fridays and, with the assistance of the Provost’s Office, recruits volunteer faculty mentors from throughout Baylor. The curriculum extends for six weeks and focuses on keys to success as a freshman student. Faculty leaders for Chapel Friday sessions receive no financial compensation or course credit for their time. Chapel Fridays has produced mixed success. This initiative, in place for three years, has lacked campus-wide participation and acceptance, especially among members of the faculty. The effectiveness of Chapel Fridays sessions is minimized by a connection to the chapel requirements, a short tenure (six weeks), and underdeveloped curriculum. While all freshman students participate, the feedback to the academic programs is weak. The program is not consistent in terms of content or quality of interaction. Both faculty and students view Chapel Fridays as disjunctive from the curriculum. So many Baylor students belong to religious organizations and participate in weekly religious activities, such as Bible studies, Sunday school or prayer groups, that Chapel Fridays may be redundant in terms of promoting spiritual or ethical engagement with campus life. Many students, however, find their Chapel Friday mentor is the first faculty member they come to know well. Others find the chance for discussion helpful in terms of adjusting to Baylor life and demands.

Academic units of Baylor University have also established undergraduate learning communities and freshman-specific seminar sequences. These endeavors, that include some programs with strong student enrollment, are

• **Living and Learning Centers.** The Honors College and the School of Engineering and Computer Science established residential learning communities in 2004. These living-learning centers are so popular with incoming students that they maintain waiting lists. Since 2004, student participation in these two centers, plus a third multidisciplinary leadership living-learning center, has grown to over 600 students. Faculty and undergraduate community leaders (resident assistants) live in the complexes. This QEP calls for the creation of new living-learning centers that can become learning community options for entering students.

• **Baylor Interdisciplinary Core (BIC).** The Baylor Interdisciplinary Core offers a sequence of general education courses, extending from the freshman through the senior years. Freshman students may elect the BIC program or may chose to pursue individual offerings to fulfill the general education requirements. The BIC curriculum is inherently interdisciplinary and incorporates humanities, science and social science. BIC lacks a freshman seminar series with small classes, while offering BIC 1212, a course covering university life and learning skills.

• **First Year Seminars.** The Honors College offers First-Year Seminars (FYS) as a replacement for English 1301. Most sections of FYS fill to a
Seminars related to medicine and life science and those in the humanities are especially favored by honors freshman students. The FYS series is a success, both in terms of student evaluations and in promoting learning skills development. A second series of first-year seminars, the Freshman Academic Seminars, is under development for enrollees of all academic skill levels. While recent evaluation finds the FAS sequence is not an adequate substitute for English 1301, FAS courses have superior teaching evaluations and improve freshman retention. The associate dean for humanities in the College of Arts and Sciences has proposed utilizing the FAS seminars to fulfill social sciences and science general education requirements, in order to retain the series.

In summary, while these are pockets of innovative endeavors developing on campus, many students still remain unconnected to at least one learning community. Moreover, these important but disjoined activities lack the coordination, structure, and intentionality necessary to achieve effectively Chickering and Gamson’s (1987) Seven Principles for Good Practice in Undergraduate Education.

B. Focus of the Initiative

1. Program Overview
   The proposed approach in this initiative requires building on the current infrastructure and advancing a new and seamless series of activities that provide students with repeated and enhanced interactions with faculty, clear messages about academic expectations, and systematic efforts to ensure all students are actively participating in first-year programs. In addition, all students are guaranteed placement in at least one semester-long learning community with the opportunity to enroll voluntarily in other learning communities. The benefits of learning in these communities are supplemented with peer mentoring, which provides students a support system for their relational and academic needs. These repeated opportunities to connect to and become familiar with the campus ethos are fundamental to this proposal, which seeks to increase the potential for freshman students to learn in a community and be supported by both peers and faculty.

2. Program Goals
   If Baylor is to create programs that will enhance the first year of its students, what outcomes will guide educational initiatives? One highly regarded and widely accepted set of indicators is Chickering and Gamson’s (1987) Seven Principles for Good Practice in Undergraduate Education. The best undergraduate pedagogies:
   1. encourage contact between students and faculty,
   2. develop reciprocity and cooperation among students,
   3. encourage active learning,
   4. give prompt feedback,
   5. emphasize time on task,
   6. communicate high expectations, and
   7. respect diverse talents and ways of learning.
Using Chickering and Gamson’s (1987) practices, coupled with an analysis of current matriculation activities at Baylor, seven goals act as benchmarks for this initiative. Freshmen will
1. develop a rapport/relationship with one or more faculty members;
2. acquire a commitment to responsible citizenship in the academic community;
3. accept and adapt to Baylor’s high academic expectations;
4. readily engage in and seek out peer-to-peer collaboration and learning; especially related to the academic mission of the university;
5. understand their own learning styles, appreciate the diversity of talents (strengths) and styles of learning of others, and feel empowered to develop new academic skills;
6. exhibit learning skills based in active and engaged learning; and
7. receive early feedback about student performance, personal concerns and issues related to acclimation.

In addition, this QEP establishes the following goals concerning student participation:
1. All freshman students will participate in a University 1000 section or a learning community. Student ratings will be positive, and students would highly recommend the experience they select to their peers.
2. Baylor will develop new learning communities that include small class size cohorts. The initial goal is at least six new offerings in FY07 and four additional each year for the duration of the initiative. Through the five years of the QEP, this initiative will shift distribution of enrollments from University 1000 toward other longer term learning communities.

C. Implementation Plan

1a. Coordination of Programs

This proposal is under-girded by the value that learning and development are substantively enhanced when a student is connected to an intentional academic learning community that facilitates student-to-student and student-to-faculty interaction. Students who find membership in a learning community are more likely to pursue continued participation in such for the duration of their undergraduate education. Fortunately, many learning communities already exist at Baylor, and programs serving students in this way should be preserved. In addition, students already experiencing the benefits of learning community participation should not be directed into an additional mandatory experience unless they so desire. Otherwise, university resources and student commitment may be strained.

Nevertheless, it is estimated that a majority of Baylor freshman students (and most transfer students) never engage in an intentional faculty-coordinated learning community. The creation of and implementation of University 1000 (Freshman Experience Course), residential learning communities and non-residentially-based freshman learning (least preferred) create additional avenues for student membership in a learning community. This proposal recommends that all entering students be required to participate in at least one credited learning community during the first year at Baylor University.
While many students will select to participate in University 1000 or a learning community, others may select from a variety of opportunities that are approved as meeting defined components of a learning community (these may or may not require University 1000 as part of its curriculum). For example, Baylor has experienced substantial growth of student participation in living-learning centers. These residentially-based programs consist of cohort courses, enhanced faculty-student interaction, coordinated social programming and consistent academic messaging and support. Currently 600 students participate in one of Baylor’s three living-learning programs, and in 2007, an additional 400 students will live in Baylor’s first residential college. The Baylor Interdisciplinary Core serves as another example of a “learning community” already in place and serving students well. While these individual endeavors may elect to require University 1000 as a cohort course taught by one of its learning community faculty, this remains the discretion of the unit. Figure 1 below illustrates how each entering student will be able to select from a variety of learning community participation.

**Figure 1**

![Diagram](attachment://diagram.png)

**Living-Learning Centers**

**Baylor Interdisciplinary Core**

**New Student → Selects Learning Community → University 1000**

**Residential College**

**Learning Community**

*(may require University1000)*

1b. Establishing University 1000 with peer mentoring

*a. University 1000.* This QEP proposes the creation of a new credit/non-credit freshman year seminar course, named University 1000, as a learning community option. After implementation in 2007, this course could be transitioned from a one-hour credit/non-credit course into a graded three-hour course by the fall, 2008. Since the majority of current entering students are not affected by established learning communities, it is projected that approximately 75 percent of freshman and transfer students will enroll in one of these sections.

In order to maximize its effectiveness, University 1000 will be introduced to new students during Welcome Week. Therefore, the small group to which each student is assigned during Welcome Week will also serve as a student’s University 1000 cohort. Some Welcome Week activities will be designated as required and will include intensive faculty participation. By mandating certain activities during Welcome Week, Baylor
transforms the university’s traditional welcome into an activity with potential for substantive learning and acculturation. Welcome Week will offer a time to emphasize the importance of faculty and student interaction and the responsibility and expectations we share as a learning community. This “new” Welcome Week will ensure complete participation by the freshman class, especially during required activities. As already mentioned, current Welcome Week participation is erratic and tapers off substantially as the program advances to later days. It also has no substantive faculty participation.

The curriculum for University 1000 will be developed by a provost-appointed committee, and its focus will fundamentally center on student learning, academic success and how to make the most of the Baylor experience. As faculty leaders are trained to teach curriculum for the course, they will be exposed to student development theory underscoring how to work with first-year students and the various transition issues faced. One strategy of the curriculum is a common reading, selected by the curriculum committee and introduced and distributed to new students during freshman orientation in the summer. Students will be instructed to complete the reading prior to returning to campus for Welcome Week. This text will be used as the basis for the first group meeting and referenced throughout other class sessions when appropriate. This common reading experience will both prepare new students for unique issues they will encounter as they matriculate into a university setting and challenge them to think about broader issues, such as their own purpose in life.

Students enrolled in another learning community that does not include University 1000 will participate in Welcome Week with their particular learning community.

b. Peer mentoring and faculty interaction. In implementing University 1000, learning inside the classroom will be augmented by interactions outside of the classroom. The program encourages faculty members to host coffees, meals, or study breaks for students in their University 1000 sections, with faculty expenses being reimbursed. Additionally, student leaders will serve as peer mentors to new students outside of class sessions through individual weekly meetings. Such interactions reinforce messages from class sessions, assist students in setting and reaching academic goals and guide students through issues that inhibit their potential. Peer mentors will provide new students with positive role models who will answer questions, connect students with resources and encourage reflection on what has been learned. This blend of faculty and student leadership will promote engaged, reciprocal learning that will benefit all University 1000 participants (faculty, upper division students and new students).

As peer mentors, upper division students will be faced with a tremendous learning opportunity, as well as a position of responsibility. The two upper-division students (one female and one male) selected as peer mentors for each University 1000 section will help facilitate the class and provide individual mentoring to the new students outside of the class meeting time. Peer mentors should expect the following:

- To earn one credit hour for participation in a peer mentoring training course taken in advance of assuming the appointment;
- To receive a stipend of $500;
- To participate in planning and coordination meetings;
- To meet with entering students frequently.
1c. Expanding and restructuring Freshman Learning Communities

- **Learning Communities as an alternative.** Entering freshman and transfer students may choose between University 1000 and participation in an approved learning community (which again may or may not require University 1000). The learning community consists of a University 1000 section or content within the course sequence covering key learning skills, and at least two common courses, one of which may be an FYS or FAS section. A learning community with a University 1000 section and with three additional courses, or an FYS or FAS section and at least two common courses is preferred. The Office for Engaged Learning will both solicit proposals for learning communities from Baylor academic units and recruit proposals from willing faculty teams. The teams may be interdisciplinary or may represent particular academic units, such as Honors or Music. The common courses are sections of introductory courses for majors or general education courses already listed in the Undergraduate Catalog. Early coordination will explore the possibility of incorporating courses with high enrollment and many sections, such as English 1301, into the learning communities. The University 1000 sections will be identified with a learning community via a hyphenated designation and closed to students not enrolled in the learning community sequence. The coordination committee for learning communities will determine the exact parameters for newly-established learning communities.

In addition to sharing other classes, students will benefit from activities planned by a faculty coordinator for each main learning community heading. For instance, there may be three learning communities for pre-healthcare. Each of the individual communities has two peer mentors (total of six) and a University 1000 or seminar faculty leader (total of three). Three communities will share one coordinator who organizes activities for all three groups to supplement what is taking place in University 1000 and the peer mentoring. A faculty member will receive a proposed $1,500 stipend for working as the coordinator. That person may or may not be a University 1000 leader. The strategy for program development has the following elements (based on a 2005 QEP proposal by the University of Memphis):

- The learning communities are comprised of specially-formatted sections of existing courses, or of FYS or FAS sections. Each course reflects a common theme, shared by the learning community. Participating faculty will cross reference readings and class assignments to engage the theme. FYS and FAS courses are flexible in terms of topic, thus they can be used to provide a seminar that is an exact fit to the theme.
- Instructors will be volunteers from among the faculty already teaching introductory sections. Incentives will be small class sections, interdisciplinary teaching opportunities and possibly a financial incentive or minor reduction in service load.
- The overall size of class sections within a department will not change greatly, as the courses will be one or two sections within the range of departmental introductory offerings.
- Freshman advisors, and units such as the Honors College, will advertise the offerings to incoming freshman.
• Aside from soliciting proposals in popular fields, such as pre-medical, the program will initiate with a general call for proposals. Winners will receive a small financial allocation for professional development.
• The University 1000 sections aligned with the learning communities may be scheduled relative to the needs of the community. The University 1000 sessions may meet at night, may be organized into two or three hour sessions. The University 1000 sections may be taught by an individual or by the teaching team.
• Learning communities can and should require attendance at cultural events and charter excursions to central Texas resources, such as museums. They should share meals, coffees and public service work teams.
• The learning communities will organize undergraduate peer mentors to assist students in introductory courses offered by their individual programs.
• Although the coordination committee for learning communities will make the ultimate decision, section sizes for learning communities will be limited. A typical cap is 25. In some cases, sections of University 1000 and FYS, limited to 15 or 18, might be combined between two learning communities into introductory science or social science sections of 30 or 36.
• Where possible, learning communities should be interdisciplinary.
• Learning communities may be residential (preferred) or non-residential.
• A plan for the University 1000 section or for seminars must meet the all campus criteria for the campus-wide version of University 1000.

b. Examples of potential Freshman Learning Communities. The following are examples of subject areas potentially attractive to freshman or fields with large numbers of incoming students each year (See Appendix B for examples of courses).

i. Pre-health care and science majors

Pre-health care and science majors comprise such a high percentage of Baylor freshman students that these fields are a first priority for Freshman Learning Communities. The physical and residential environment should enhance efforts to form freshman learning communities. The Baylor Sciences Building (BSB) offers lounge and computer areas facilitating student interactions and casual discussion. Freshman science students often have two or three classes in BSB. The second nexus for science students is the North Village housing area, where the Honors science majors reside. A significant percentage of Honors freshman students enter as “pre-medical.” Science majors favored by pre-meds, however, suffer high attrition between freshman and sophomore year. The redirection of the departing students has negative impacts on the departments and on the students themselves. Biology, Chemistry and Neurobiology lose a substantial educational and advising investment in potential majors. Students with weak high school preparation or inadequately developed academic skills become casualties, even if they are innately interested or talented in science. The pre-medical and science-oriented freshman could greatly benefit from learning skills
development oriented towards the quantitative fields and from peer mentoring. FYS and FAS sections with medical topics have been exceptionally well enrolled. Several strategies could potentially improve freshman learning-engagement in sciences. One of these is offering an Honors Learning Community with a research-oriented University 1000 seminar, an FYS on a medical topic and a shared Honors section of the introductory Biology major’s course, BIO 1305. A second strategy, for students with weaker science backgrounds, might be an introductory learning skills University 100 seminar, an FAS seminar on a pre-medical topic offering social sciences credit and a section of CHE 1300, intended to prepare students for introductory majors chemistry. The latter combination could serve as a Summer II introduction to Baylor for freshman needing to compensate for limited high school level preparation in science, prior to encountering the competitive introductory Biology and Chemistry courses.

**ii. International, cultural and global studies**

Baylor University has an exceptional record in enrolling undergraduates in study abroad and other international programs. Further, Baylor Arts and Sciences has maintained a four-semester foreign language requirement for all majors, and a three-course social sciences requirement for the B.A. Majors from religion, to Spanish, to marketing, to political science could benefit from learning communities centered on global or cross-cultural perspectives. Once saturated with students from small town and rural Texas, Baylor is diversifying in terms of ethnic, socio-economic and religious background. Carefully-planned cultural heritage and cross-cultural learning communities can assist Baylor students and faculty in responding to the changing composition of the student body.

**iii. Business**

Baylor has a large undergraduate business program. Learning communities in business may either be primarily business courses or may be comprised of general education courses with content adapted to interest business students.

**iv. Christianity and society**

Many freshman students enroll in Baylor because they prefer a Christian educational environment or they are considering careers in Christian ministry. Introductory Religion courses could be combined with FYS or FAS seminars in fields such as Philosophy or English Literature to provide insights into the relationship between Christianity and western culture. Learning communities emphasizing Christian themes may also draw on the social sciences to highlight service opportunities or the interface between religion and politics. University 1000 sections with a service component should be attractive due to their highly socially interactive nature. A learning community with Habitat for Humanity as a theme, for example, can be actualized with faculty interest from appropriate fields (Sociology, Social Work, Business, Anthropology, Environmental Studies, Family and Consumer Sciences), peer mentors with service experience and some imagination in selecting readings. Many other departments or programs could
participate in a Habitat learning community, once it has a social core, including
English, International Studies, Philosophy and History.

\textit{v. Research based}

Honors and other freshman students with exceptional credentials may enter a learning community with a research interest, such as genetics. This learning community will continue into the second semester of first-year or the first semester of second-year, with an opportunity for research participation and an additional seminar based in a specific research area. The faculty organizing the learning community will assist the students with placements and integration into research and will absorb a portion of the cohort into their own research projects.

Learning communities can be based on a spectrum of other student interests, including major fields such as education, American studies, arts and theater, interior design, statistics, engineering, and issues or topics such as poverty, environmental change, religious violence or trends in bilingual education.

c. \textit{Current programs sponsoring coordinated courses.} Early in the development of University 1000 and the learning communities, the Director of the Program for Engaged Learning and the Advisory Committee will meet with the Deans and team leaders responsible for undergraduate tracks with curricula shared among incoming students, and will encourage these tracks to develop their own options for University 1000 and for learning communities, if they do not offer the latter already. Table 1 displays the programs with shared courses or events for freshmen.

\textbf{Table 1: Example of programs with common curriculum}

<table>
<thead>
<tr>
<th>Program</th>
<th>Approximate Number of freshmen</th>
<th>Freshman activities</th>
<th>Courses with University 1000 content</th>
<th>Other shared 1000 level courses</th>
<th>Housing or shared locale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honors College</td>
<td>300</td>
<td>Shared reading with speaker – no credit – overlaps with U 1000</td>
<td>FYS 1399 covers academic skills</td>
<td>Select a seminar, take GTX 2301 spring term</td>
<td>Yes, HC-LLC</td>
</tr>
<tr>
<td>Program</td>
<td>Code</td>
<td>Description</td>
<td>Outcomes</td>
<td>Group</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>BIC</td>
<td>200</td>
<td>BIC 1212 covers introduction to university life and academic skills</td>
<td>Entirely shared curriculum with break-out sections</td>
<td>Yes, HC-LLC</td>
<td></td>
</tr>
<tr>
<td>Great Texts</td>
<td>100</td>
<td></td>
<td>Shared curriculum from 2000 level</td>
<td>Yes, HC-LLC</td>
<td></td>
</tr>
<tr>
<td>Engineering and Computer Science Living Learning Center</td>
<td>200</td>
<td>Shared activities</td>
<td>Students in cohort introductory courses</td>
<td>Yes, ECS-LLC</td>
<td></td>
</tr>
</tbody>
</table>

3. Assessment

Chickering and Gamson’s (1987) good practices in undergraduate education will be the guiding set of outcomes used to measure success of the proposed Freshman-Year Experience Program. Again, good practice:

1. encourages contact between students and faculty,
2. develops reciprocity and cooperation among students,
3. encourages active learning,
4. gives prompt feedback,
5. emphasizes time on task,
6. communicates high expectations and
7. respects diverse talents and ways of learning.

Specific assessment activities to be employed to measure progress on these outcomes are

1. A quantitative questionnaire will be developed to measure student performance based on these seven practices. A random sample of students will be measured annually and compared with each cohort of entering students. Qualitative focus groups will be initiated to interpret quantitative data, as well as to inform progress on student learning.
2. The NSSE will be administered to each cohort of entering students and benchmarked against peer institutions as well as previous cohorts of Baylor students (including the 2003 data showing deficiencies).
3. Baylor retention data should be monitored carefully, as this statistic is frequently an indicator of the level of engagement and learning occurring in the environment.
4. Student and faculty satisfaction instruments will be developed to gather data from all individuals participating in any element of the proposed Freshman-Year Experience Program.

Improved retention rates, progress on NSSE measures and adequate improvement on self-designed assessment instruments will all be used to evaluate progress, as well as improve the delivery systems proposed. These efforts are summarized below in Table 1.

<table>
<thead>
<tr>
<th>Operational Goals and Student Learning Outcomes</th>
<th>Assessment Methods</th>
<th>Implementation and Data Collection</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Participation Goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Participation Goals (Overall Program)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Complete student participation in one or more learning community during entering year.</td>
<td>Actuarial data on:</td>
<td>Data will be collected from BANNER (class and seminar registrations) and from student surveys and qualitative focus groups.</td>
<td>Actuarial data on:</td>
</tr>
<tr>
<td>• Students will participate in learning communities beyond the entering year at increasing rates.</td>
<td>• Percentage of students participating by term, year, major, college or school, gender and ethnicity;</td>
<td>• Brooks Residential College opens in 2007 enrolling 400 additional students in new learning community.</td>
<td>• Enroll 200 additional students each year in new learning communities or living-learning centers.</td>
</tr>
<tr>
<td>• Students will show increased retention rates at Baylor and within majors.</td>
<td>• Increases in participation over time;</td>
<td>• Retention, retention in major and graduation rates for participating students and comparison groups</td>
<td></td>
</tr>
<tr>
<td>• Students will report being more</td>
<td>• Retention, retention in major and graduation rates for participating students and comparison groups</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
engaged and satisfied with their learning as reported by the NSSE.

- The number and quality of learning community options increase each year.

<table>
<thead>
<tr>
<th>II. Skill, learning outcome and engagement goals</th>
<th>Surveys will assess:</th>
<th>The Office for Learning Engagement will develop student questionnaires and administer these to pre-project and end-of-project students.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will demonstrate gains in skills and learning engagement – overall strategy for assessment.</td>
<td>• attitudinal measures</td>
<td>• The office will interview students in learning communities, research tracks, and the Summer Research College.</td>
</tr>
<tr>
<td></td>
<td>• student evaluation of the learning community experience</td>
<td>• The office will survey graduating seniors and alumni.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Baylor will continue to monitor NSEE.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students will exhibit higher scores on survey instruments, in terms of learning engagement and skills acquisition than students not entering research tracks.</td>
</tr>
</tbody>
</table>
findings.

1. Faculty/student interaction and team participation

- NSEE data
- Student evaluations and interviews
- First-year and senior surveys

Students will have higher scores than baseline FY06 data on “Active and Collaborative Learning” and “Faculty–Student Interaction.” Baylor seniors will be in the top quartile by FY11.

2. Student challenge and engagement

- NSEE data
- Student evaluations and interviews
- Freshmen and senior surveys

Students will have higher scores than baseline FY06 data on “Academic Challenge.” Baylor seniors will be in the top quartile by FY11.

Credit: This table is based on a QEP by Georgia Institute of Technology (2005, pp. 28-29).

5. Timeline

Table 3: Timeframe for Learning Communities

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Benchmarks</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY06</td>
<td>• Construct Advisory Committee&lt;br&gt;• Complete draft final plan</td>
<td>• Advisory Committee writes final plan</td>
</tr>
<tr>
<td><strong>FY07</strong></td>
<td><strong>FY08</strong></td>
<td><strong>FY09</strong></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>
| • Establish Center for Engaged Learning  
• Begin fund raising  
• Launch five new learning communities and three new living-learning centers  
• Establish assessment database  
• Hold first Undergraduate Research Meeting  
• Have University 1000 sections operating with training faculty and student mentors  
• Open Brooks Residential College | • Make decision about University 1000 becoming a graded three-hour course.  
• Launch five new learning communities and one new living-learning center | • Launch 2 new learning communities and one new living-learning center | • Launch 2 new learning communities |
| | | | | • Intensify all efforts |
| | | | | • Intensify all efforts | • Intensify all efforts | • Intensify all efforts | • Intensify all efforts |
| | | | | • Locate office space, hire Director  
• Hire staff  
• Setup web site  
• Meet with development, write development plan  
• Recruit student leadership  
• Develop internal assessment instruments  
• Send faculty off-campus for development  
• Acquire materials necessary for meeting, and offer prototype in the spring | | | | | | | | |
FYII  |  • Conduct fifth year assessment  |  • Learning Assessment Committee delivers review to the Provost

5. Program Office, Advisory Committee and Staffing

a. Advisory Board. The creation of the First-Year Experience Advisory Board will bring campus partnerships together on a regular basis throughout the year. Membership will include student life professionals, faculty and current students. The advisory board will assist with ongoing development of a new freshman course, University 1000, by providing support through a listserv to faculty teaching the course and will provide resources to others on campus who regularly interact with first-year students. Residence hall community leaders, residence hall directors and academic advisors will be included on the listserv. The advisory board will recommend the common reading for new students, for University 1000 sections independent of learning communities. The advisory committee will also guide the learning communities and encourage new endeavors in this area. To provide objective evaluation of program successes and failures, a Committee for Learning Engagement will conduct assessment of this initiative and the initiative in undergraduate research.

b. Recruiting and Retaining Faculty Mentors. One of the greatest potential barriers to a successful University 1000 is a dearth of mentors. Early tenure track assistant professors and faculty with administrative assignments, such as Graduate Directors and Department Chairs, may be too heavily loaded to set aside the time. Some instructors will have scheduling conflicts. The mixed reputation of Chapel Friday may discourage experienced seminar leaders, even though University 1000 is a new offering. Some faculty will participate for a year or two and then drop out, feeling they have done their share. Considering the additional impacts of sabbaticals, tenure evaluation, special assignments and personal health and family concerns, a high percentage of full-time faculty who are both able and willing must volunteer in order for University 1000 and the learning communities to be a continuing success.

Faculty leaders are more likely to sign up and to reenlist if they receive direct benefits from longer-term service. One possibility is small stipends. Another is access to a development grant or a pool of development funds, offering such advantages as travel to a professional meeting every second or every third year. Many faculty need additional travel funds to attend professional meetings and could combine scholarly and educational interests with this relatively inexpensive perk (Stipends require paying benefits, whereas travel grants do not). Managing a learning community or a University 1000 section can be considered the equivalent of an all-university committee assignment, providing release from a service obligation. The program should sponsor travel for core University 1000 and learning community organizers to national meetings discussing best practices and first-year experiences. The FYE should encourage tenure and promotion committees to provide full teaching credit for participation in the First-Year Experience. The office also
should consider optimal scheduling for faculty carefully, and allow as much flexibility as possible.

\textbf{c. Student Fees and Funding.} A student fee for each freshman student can be considered to supplement cost for University 1000 and perhaps generate enough funds to cover expenses of the course itself. Those costs include: printing and supplies for University 1000 (including the cost of the common reading for each student), training (for both faculty leaders and peer mentors) and food expenses (including reimbursements to seminar leaders for group activities). Other resource requirements, other than those in the Office for Engaged Learning, include the hiring of a student worker, a graduate assistant for peer mentoring and a graduate assistant for the learning communities. Other budget needs for the First-Year Experience include promotional materials and postage for mailings to incoming new students, learning community program coordinator stipends, learning community programming and wages for peer mentors.
III: Campus-wide Undergraduate Research Experience

A. Rationale for the Initiative

1. Importance of the undergraduate research experience

Stimulated by funding from the National Science Foundation, charitable trusts and university endowments, undergraduate participation in research has become the norm in the nation’s the nation’s best undergraduate programs. Almost all highly competitive private colleges and universities incorporate undergraduate research in their strategic planning. At MIT and Caltech, up to 60 to 80 percent of the students conduct research, and many students begin in their freshman year (Merkel 2003). Although the initial goal at Baylor is to recruit 6 to 10 percent across the campus, such widespread involvement modifies undergraduate culture far beyond the sphere of the direct participants. Research offers students an opportunity to excel outside the realms of sports, student government and social clubs. Not just the apprentice researcher, but their friends and classmates will find the realm of new ideas more accessible and comprehensible. Further, an Undergraduate Research Center promoting research-across-the-curriculum will assist faculty in organizing team research projects, which can reach a high percentage of majors within a department. A campus culture nurturing creative projects of all genres is essential to an excellent undergraduate learning environment.

Research participation stimulates critical thinking, develops problem solving skills and nurtures academic imagination. Students develop accountability, academic honesty and self-discipline. Long-term participation in research teaches students to process and analyze data, seek out primary sources, articulate their ideas, network with their colleagues and write and present at a professional level. Undergraduates collaborate not just with their peers, but with faculty and graduate students. Students engaging in composition or design learn to plan and synthesize. Undergraduates with extensive laboratory experience are better able to utilize instrumentation, follow instructions, design experiments, construct and test hypotheses and modify methodologies to fit an experimental protocol. Research participation prompts closer and more frequent interaction with the faculty who provides role models for students as they prepare for careers (Bain 2004). Successful research participation builds confidence and self-esteem and encourages students to believe in their own abilities, solve problems and complete major projects.

In terms of best practices, BIO 2010 (2003), published by the National Research Council, identifies undergraduate research as a premier form of inquiry-based learning. Incorporation of inquiry is now routine in K-12 curricula and often takes the form of mini-research projects (Hartman and Glasgow 2002). Students entering college increasingly expect a highly interactive curriculum, where they participate with faculty and their peers in designing experiments and conducting investigations. A similar pedagogy, problem-based learning is a powerful tool for college teaching, compatible with team research projects (Duch et al. 2001). Research propagates learner-centered teaching since it emphasizes discovery, peer cooperation, faculty as models, student responsibility and teamwork (Weimer 2002). Barkley et al. (2005) identify research as a form of collaborative learning. The NSF-funded Project Kaleidoscope (Internet site)
links several best practices to student research including inquiry-based, learner-centered and collaborative teaching methods. Student researchers receive editorial assistance from their mentors and are highly motivated to improve their reporting and presentation skills. NSF, NIH, the Carnegie Foundation and the Boyer Commission on Educating Undergraduates at Research Universities have produced studies or white papers verifying that research opportunities for undergraduates improve retention of underrepresented groups, increase satisfaction with the college experience and raise graduate admissions (Kinkead 2003, Merkel 2003).

2. Baylor’s needs for strengthening undergraduate research

Baylor University already has a wide array of undergraduate research activities established across campus, such as the Pulse (an undergraduate journal) and the summer REU in Physics. Baylor, however, lacks a coordinated all-campus program with faculty development for research-across-the-curriculum, an undergraduate research center, an undergraduate research conference, a campus-wide summer undergraduate research college and a system of undergraduate research fellowships. Further, participation in research varies greatly among departments. Some majors have almost all students engaged at some phase of their undergraduate career, while others offer no catalog-listed courses awarding academic credit for research.

Other Big 12 Universities, such as UT Austin and Texas Tech, and almost all of the most competitive private universities and colleges already sponsor major undergraduate research initiatives. A number of highly competitive universities, such as Cornell, sponsor summer research programs for high school students. Although there are successful projects underway in dispersed Baylor locations, Baylor undergraduate research lacks any centralized organization. Only a handful of departments sponsor research presentation opportunities on campus. Many faculty continue to see research and teaching as conflicting spheres of endeavor. These deficiencies are among the gravest failings of Baylor 2012. A campus-wide undergraduate research initiative is absolutely necessary to properly integrating faculty scholarship with teaching on the Baylor campus.

Baylor is emerging from an era of intense conflict over the relationship between scholarship and teaching. Increased integration of research into teaching could assist in reducing tensions. Many faculty who have primarily served as classroom instructors remain unhappy about the emerging emphasis on scholarly productivity, while the accelerated development of faculty research culture is discouraging faculty wishing to publish from making room for undergraduates. The recent emphasis on graduate program improvement may encourage faculty to stick to graduate students. The key to reducing these divisions is making research a seamless and pervasive component of campus pedagogy. Lead scholars will accept undergraduate researchers, if undergraduates contribute to rather than distract from faculty scholarship, and raise research productivity rather than decreasing it. If the undergraduate program melds with the graduate program and provides top candidates for graduate admission, tensions will be reduced. If research mentoring is hybridized with classroom instruction, rather than being a separate activity, strongly teaching-oriented faculty will be more willing to participate (Malachowski 2003).
As cited in the introduction to this QEP, NSSE annual assessment found Baylor freshman gave their Baylor experience weak scores in “Active and Collaborative Learning” and “Faculty–Student Interaction.” Baylor freshman students underperformed on a third measure — “Academic Challenge.” If University 1000 and learning communities will increase student contact with faculty and challenge new comers, supervised research should magnify and strengthen this effect. One only has to read a reference letter written for a student by a research mentor and compare it to one written by the instructor of large class section to verify the degree to which research generates academically-productive personal relationships. Institutions with exceptionally bright undergraduates have found research increases the level of challenge and keeps bright students engaged and focused, whereas they might become restless in standard lectures. Students become partners in the scholarly adventure rather than a mere audience.

The Baylor undergraduates themselves are articulating a desire for expanded research opportunities. Students seeking openings in labs call or e-mail department chairs in the sciences and the vice provost for research. Juniors inquire about the now defunct Scholars’ Day and express disappointment when they find there is no place on campus to display their findings. The students managing the undergraduate journal, *The Pulse*, have discussed taking the initiative themselves in organizing an undergraduate research conference. Students often ask: “How do I get started in research?,” and find there is no campus program to direct them.

**B. Focus of the initiative**

1. **Program overview**

   This initiative expands the accessibility of research experience to undergraduates and enhances the quality of the existing supervised research programs from high school summer enrollees through graduating seniors. This initiative will investigate means to expand undergraduate research in departments where it is less developed or where it is more difficult to support and organize. The initiative will establish an Undergraduate Research Center offering: seminars, tuition waivers for summer research participation, small grants for faculty organizing projects, an annual conference, writing and research awards, outreach to underrepresented students and organized trips to regional research symposia. The program will raise the percentage of Baylor students entering graduate education and will enrich undergraduate educational experience throughout the University. This initiative will elevate Baylor’s undergraduate research profile, incorporating as many students as possible from all schools and colleges.

2. **Program goals**

   The educational goals of the research initiative are:
   1. To integrate teaching and scholarship at the undergraduate level.
   2. To begin preparation for research in the freshman and sophomore years.
   3. To extend undergraduate research participation over several semesters.
   4. To improve student skills in critical thinking, writing, problem-solving, collaboration, and in field-based methodologies.
5. To triple student research participation within the first five years. The ultimate goal (after the end of this QEP) is greater than 20 percent participation, with higher levels for quantitative fields and honors.

6. To increase undergraduate participation in publication, in on-campus and off-campus presentation and in writing competitions.

7. To train and support faculty mentors and to encourage adoption of best practices, particularly outside the usual classroom setting.

8. To integrate underrepresented and at-risk students into research.

9. To improve retention across campus and in fields with high attrition from majors, such as the laboratory sciences, and to increase graduate admissions within two years of graduation.

The participation goals for the research initiative are:

1. A tripling of undergraduate participation and on-campus presentation.
2. A doubling of off-campus presentation and refereed publication with undergraduate co-authorship.
3. Improved retention in thesis tracks for honors students.
4. Presentations from all schools and departments at Scholars Day.
5. Increasing percentages of underrepresented students participating.

C. Implementation Plan

1a. Establishing the Undergraduate Research Center

   a. Administrative Structure. A first step in providing coordination for undergraduate research at Baylor is evolving a campus-wide administrative structure. The introduction of freshman to research options is best accomplished through the learning communities. The First-Year Experience Advisory Committee will coordinate with the vice provost for Research and the academic units in integrating research as a topic. The office of the vice provost for research will establish an Undergraduate Research Center managed by a director selected from the faculty. Consultants have suggested integrating students into management where possible. Undergraduates can operate the internet site and accomplish much of the organization for an annual research conference. Faculty advisors, rewarded with course releases or stipends (much like graduate directors), can serve as director, and as the center expands, research conference coordinator and fellowship coordinator. Student workers can assist with mailings and office tasks, making the operation even more student-oriented. The faculty supervisors should represent different schools of the university. Potential models, in terms of administrative organization and internet presence, are Stanford University, Rutgers University, Duke University, University of Pennsylvania, University of Maryland and University of Georgia, among others.

   Baylor is depleting the supply of possible “bear” acronyms, but URSA or URSUS, the Latin name for bear might translate into (Center for) Undergraduate Research and Scholarly Achievement or (Program for) Undergraduate Research and Undergraduate Scholarship. The constellation the Great Bear, Ursus major, is a possible non-copyrighted logo, associated with natural history, literature, languages and the arts. Undergraduate Research Center codes to URC, which is already the acronym for the University Research Council, and therefore can cause confusion.
An advisory committee, comprised of leading faculty researchers and accomplished teachers, representing all the undergraduate schools and a range of programs, staff from the student life division will guide the director and student staff in establishing the Center. The advisory committee can incorporate off-campus members, particularly representatives of regional research organizations and industry. In increase awareness of national trends in undergraduate research mentoring, Baylor University will join at least two or three organizations supporting undergraduate research, such as the Council on Undergraduate Learning through Research and Project Kaleidoscope (for the natural sciences).

The research center will provide the following services:

- establishment and maintenance of an internet site directing undergraduates to research resources;
- distribution of interdepartmental or all-campus undergraduate research funds and management of cash awards;
- advertising of research openings available to undergraduates, including off-campus opportunities;
- training seminars for students and internet-based coaching on how to find a research mentor, how to write abstracts, how to construct a poster and how to apply to graduate school;
- provision of materials for faculty on how to mentor beginning researchers;
- advertisement and management of the annual Scholars’ Day and Undergraduate Writing Awards Reception;
- collaboration with the Honors College to provide appropriate research opportunities for honors students;
- a student-friendly statistical and research design consulting service in conjunction with the statistics department (concept from Jack Tubbs);
- assistance with IRB and other research approvals; and
- collaboration with the Baylor Development Office to solicit funds to support undergraduate research scholarships.

Baylor students are enthusiastic about expanded research opportunities, especially those with fellowships or other support. Encouraging students to enter the research tracks in their sophomore or junior year will improve retention and provide adequate time for preparation. The First-Year Experience can recruit students to research. Outreach and the generation of a student research culture will reduce risk, as will implementing the strategies of successful programs at other universities.

b. Financial Incentives for Undergraduate Research. The Undergraduate Research Center will organize a small grant program fostering undergraduate projects. Other universities distribute funding in one of two ways: 1) grants for specific undergraduate projects, where students apply with faculty support; and 2) grants made to faculty to provide start-up funds for research ventures suitable for undergraduate participation. The University Research Council can administer these awards and arrange for reviewing, or the Undergraduate Research Center can administer their distribution. The amounts will be small, potentially in the $2,000 to $5,000 range. This portion of the program should ultimately be supported by endowment.
Following the strategies of successful undergraduate research networks, the Baylor program will target candidates for research participation. Recruiting oriented towards the Honors College and students in the honor societies is therefore critical. A second key cohort is the pre-service K-12 teachers, who will be conveying discovery and inquiry based learning to children (Kinkead 2003). Consultants have mentioned the difficulties of promoting undergraduate research in departments where faculty have not historically incorporated undergraduates in their own scholarship and in departments where not all faculty are engaged in research or scholarship. The Council on Learning through Undergraduate Research Newsletter provides articles on overcoming barriers in fields such as humanities and fine arts. Some units currently lacking graduate degrees, such as Family and Consumer Sciences, can utilize an undergraduate research program as preparation for expansion to a master’s program. Faculty who currently do have developed research lines can begin to re-orient their scholarly endeavors by mentoring undergraduates in start-up projects. Consultants have also mentioned barriers to inclusion of students in humanities and other fields where single individuals often conduct research on their own. Potential faculty mentors may need to modify their own research strategies and styles to integrate students. Some fields have particular methods of research they deploy, such as the emphasis on Active Research in Education.

A system of departmental or program initiatives can tailor the undergraduate research strategy to the needs of a department or school. A department recruits interested faculty (perhaps only three to five) to form a core group of mentors and begin an initiative. In consultation with the Undergraduate Research Center, the department identifies the barriers to research and also proposes solutions. The Center provides appropriate seed funding. In the case of a language program, the funding might be utilized for faculty travel to seminars concerning best practices. In the case of a hands-on field such as Family and Consumer Services, the funds might be used to support a laboratory-based initiative.

c. Establishment of Undergraduate Research Fellowships. Many universities offer Undergraduate Research Fellowships during the regular term and the summers. The Undergraduate Research Center will coordinate with University Development and individual departments and schools to raise endowed funds to provide scholarships. Typical amounts at other universities vary from $1,000 to $3,000 for a term or $2,000 to $5,000 for the summer. Since this effort will require relatively large amounts of funding, it will take a number of years to accomplish. The funds will be available on a campus-wide and a departmental basis, depending on the funding source. Some fellowships may be named or designated for specific categories of students, such as Business or Education, or fields of research, such as Biomedical.

1b. Establishing an annual undergraduate research meeting and research awards

a. Reestablishing Scholars’ Day. Consultants universally supported retaining the now-defunct graduate-student-oriented Scholars’ Day as a predominantly undergraduate activity. Graduate students may retain some poster space for practice prior to professional meetings. The renewed Scholars’ Day will emphasize research posters and displays of creative projects over oral delivery, while retaining some platform sessions.
Scholars’ Day will incorporate a variety of activities aimed at encouraging undergraduates to participate in research or apply to graduate school, including:

- seminars on selecting a graduate program, completing applications and applying for fellowships;
- seminars for sophomore honors students and other undergraduates with exceptional credentials, on how to locate a research mentor and project;
- sessions where faculty researchers give short presentations on their current ventures and potential openings for research assistants;
- awards for the best student posters and platform presentations;
- a reception with refreshments where the Vice Provost for Research announce the names of prize winning students and their faculty sponsors;
- display of winning posters and abstracts on the Center internet site;
- a funded trip to the National Undergraduate Research Conference, with a faculty chaperone, for the best four sophomore or junior presentations.

b. Organization on Campus. To ease costs and organizational complications, the various schools, such as Business and Engineering, can manage sections of the conference in their home buildings and arrange poster judges. In the past, Scholars’ Day has provided dinner for students and faculty with a nationally-renown guest speaker, as well as transportation funds for potential graduate applicants to visit Baylor. The orientation should be reversed as the conference evolves into an undergraduate event. Instead of emphasizing recruitment for Baylor, the Scholars’ Day should prepare Baylor students to apply to other institutions. Instead of having undergraduates primarily serve as an audience for faculty, they become the focus of the event. One of the advantages of poster sessions is the conference attendees can converse so easily with the presenters. This will encourage other undergraduates to become involved in research. Undergraduates will serve with faculty on the all-campus organizing committee and will run the registration desks and poster set-up.

The organizing committee will address the best spatial layout and schedule for the conference. Experimentation with timing the conference, placement and advertising to encourage undergraduate attendance should raise participation. For example, science posters could be displayed in the common areas of BSB during the day, with platform presentations late in the afternoon, which would reduce scheduling conflicts while allowing a large passive science student audience to encounter the event as they walk to class.

c. Inviting participation by other institutions. The School of Engineering and Computer Science is continuing a research conference and is planning to invite neighboring institutions to participate. The Baylor conference can host undergraduate researchers from nearby liberal arts colleges and universities. A West Texas Student Research Conference already has several institutions participating. Baylor can form a Central Texas equivalent by inviting colleges within a three-to five-hour driving radius and providing free admission. The Baylor development office might be able to locate a corporate or foundation sponsor for this venture. The system of poster prizes can be expanded to accommodate the off-campus guests. Baylor departments interested in recruiting future graduate students can offer tours of their facilities and provide an informal lunch with their faculty for visitors from their academic field, providing positive
contact with the best potential graduate applicants from surrounding schools at almost no cost to Baylor. Since several of the nearby colleges are Christian in orientation, Baylor should be an attractive site for a regional research event.

d. Conference goals. In terms of student participation, the Undergraduate Research Center will establish the initial goals for the conference by school or program. The Honors College might encourage nearly 100 percent participation of their students, at least as attendees. Engineering might target 20 posters and 10 design demonstrations, with a reception intended to attract 30 percent of their students to view the posters. The first undergraduate conference will probably consist of about 50 to 70 posters and presentations. The overall goal should be higher, perhaps in the 250-300 range for Baylor and the 150 range for other institutions attending (In recent years, University of Maryland has had 450 undergraduate participants in their conference). A second goal is increasing presentation of the posters and platform presentations at regional off-campus symposia.

e. Inclusion of creative activity. The organizing committee will encourage the inclusion of various forms of creative activity. The committee will consult with the School of Music, the School of Engineering, the Department of Art, the English Department and other programs where scholarship may be actualized through composition or design, and will determine not only the best venue for these efforts, but will also consider means of displaying student projects in fields such as art and engineering that have won off-campus competitions.

f. Funding Undergraduate Participation in Regional Research Conferences. Rather than fund individual students to attend conferences, as the graduate school does, the undergraduate program will provide funds for departments or inter-departmental teams to take undergraduates to regional symposia, such as Texas Academy of Sciences. Consultants indicated that almost every field at Baylor has a professional association that meets in Texas or the surrounding region. Many of these conferences encourage student attendance and presentation. An inexpensive strategy is to expect students to pay for shared rooms and meals, while providing van transportation and conference fees.

g. Undergraduate Writing Awards. Presently, very few departments award writing prizes to students. The Undergraduate Research Center will develop, in conjunction with related programs such as The Pulse and the Writing Center, a system of writing awards incorporating all Schools. A committee will review the writing formats favored by different disciplines and adapt the competition to prevailing class assignments and research documents. Sciences can, for example, reward exceptional laboratory reports as well as term and research papers. The committee will consider the value of freshman awards or awards specific to freshman writing seminars (FYS and FAS). The committee will also establish protocols to deal with the problem of faculty or multiple-authorship.

The committee will organize the awards by department with larger departments permitted to offer more citations. The departmental level may be honor only, with no material prize. Departments can establish a small fund to provide book cards or other concrete rewards. Students winning at the departmental level may then submit to
divisional competitions, such as best paper in social sciences. Since the great benefit of winning is enhancing a resume or graduate application, consultants have suggested a small scholarship or an academic gift, such as a book card, should be adequate to acknowledge divisional winners. The vice provost for research may hold an annual reception for the winners and their faculty mentors, possibly combined with The Pulse student lecture given by the winner of the Wallace Daniel Award for Undergraduate Writing, or the deans may present the awards at the honors convocations for the individual schools.

1c. Establishing a Summer Research College

The Undergraduate Research Center will organize a summer program for Baylor undergraduates, providing opportunities for intensive research engagement. A possible model is the Stanford University Summer Research College, which requires residence in campus housing. Stanford students must pay for themselves and participate in research seminars and other community events. The Undergraduate Research Center will locate fellowship opportunities and other financial support, such as REU grants. Baylor can offer tuition scholarships for research course or seminar credit for one or two summer terms. Students on scholarship may work in laboratories, libraries or museum collections in the afternoons and take a class in the morning. This would encourage students to stay at Baylor for the summer. The use of scholarships rather than salary reduces the cost to Baylor (this would not pre-empt any existing paid research assistantships for undergraduates, and tuition hours can be utilized as funding match on grants). Such a program will also provide assistance to faculty engaging in summer research. Tuition scholarships are not necessary to initiating the program, but would attract the best students.

1d. Projects shared with the Program for Engaged Learning – Early entry track, at-risk students and faculty development in undergraduate research mentoring

Although all of the efforts of the Undergraduate Research Center will involve the Program for Engaged Learning, the Office for Engaged Learning may be the preferable unit to administer three components of the research initiative – the early entry track, incorporation of at-risk students, and faculty development.

a. Early Entry Track. Students often wait too long in their undergraduate careers to enter research tracks. Even students in the Honors College have difficulty completing theses attempted beginning in the senior year. Experienced mentors know that starting students in their sophomore or junior year will greatly improve the quality of the research experience and the chances of the students producing their own product, such as a poster or thesis. (UCLR) Exceptionally talented students may join research “shops” in their freshman year, usually as general assistants, and then slowly mature into relatively independent researchers. The Honors College is currently revising its strategy for initiating students in research, including possible addition of research seminars prior to senior year.
The First-Year Experience will cooperate with the Undergraduate Research Center and the Honors College and the schools in offering research intake seminars aimed at freshman and sophomore students. The seminars will explain the process of research and will assist the students in locating appropriate projects and mentors. The First-Year Experience and the Center will also provide guidance via linked websites. In order to establish seminars, faculty must be available to teach one or two credits or to handle non-credit options. Consultation with the department chairs is the first step in freeing the necessary instructional resources. Other universities have an all-campus “Research Society” or “research clubs,” usually by major research field, such as SURGE for science students at UT Austin. Baylor is a favorable substrate for clubs, as the undergraduate population is primarily full-time, and the typical Baylor student preferentially joins campus organizations.

b. At-Risk and Underrepresented Students. Engagement in research can increase retention and graduate admissions for students at risk or underrepresented in their fields. This includes, for example, African Americans in the sciences and women in the physical sciences. In the case of students from educationally disadvantaged backgrounds, the program should provide “cognitive and skill development” and a highly “structured experience for continued growth.” Use of upper-classification students as peer mentors and writing coaching are likely to improve success (Kinkead 2003). The Center for Engaged Learning will identify and advise these cohorts and assist in recruiting peer mentors and in preparing these students for research tracks. The Center for Undergraduate Research can seek grants from sources such as NIH and NSF specifically to support under-represented groups. Pursuit of further REU grants will encourage diversity.

c. Faculty Development. At present, Baylor faculty educational development is centered in an intensive summer teaching seminar. Baylor does not schedule development seminars regularly on advanced topics, such as research mentoring or inquiry based instruction. The Center for Engaged Learning can institute a wider range of opportunities for faculty and form a platform for seminars in undergraduate research supervision. The Undergraduate Research Center can team with the First-Year Experience or with other existing programs, such as the Honors College, to provide support for faculty.

- Faculty participation in off-campus seminars and conferences. In the preliminary phase of program evolution, the Center will sponsor travel to off-campus pedagogical seminars for Baylor faculty who can serve as research team leaders and encourage other instructors in undergraduate mentoring. Both early career faculty displaying aptitude for incorporating students in their own research, and tenured faculty who are likely to obtain grant support or to influence pedagogical strategies within their home departments, will attend sessions offered by organizations such as the Council on Undergraduate Learning through Research. A faculty member from the Honors College who supervised refereed publication by a student winning a Mitchell Fellowship, and a scientist who mentored a junior winning a poster award at Texas Academy of Sciences are the type of scholars who can become models for others. Faculty who have been at Baylor for a
number of years, are exceptionally committed teachers, and are trying to expand their personal research engagement can also make major contributions to departmental educational culture.

- **Faculty mentoring for other faculty.** Once key faculty members have gained experience from national-level interaction with the best undergraduate research programs, they can serve as leaders for their colleagues at Baylor. The second phase of faculty development is the establishment of an on-campus seminar sequence, comprising two or three evenings during the academic term or a two-day event during late May, for future mentors. The faculty most likely to benefit will have intense research schedules themselves, so the timing must not interfere with their scholarly endeavors. New assistant professors are often overwhelmed by research commitments, so the optimal cohort to train are assistant professors with well-established research lines (usually third year and later) and associate professors who are reaching maturity as classroom, laboratory or studio instructors. Although stipends may help to attract attendance initially, a campus culture where pedagogical seminars are credited to teaching portfolios and where instructors desire exposure to new ideas and methods is the superior means of promoting participation. Faculty development will emphasize retaining focus on the students, creating a rich environment for learning, assisting students in gaining maturity and independence of thought, guiding analysis and writing and orienting students towards future careers.

- **Development for research-across-the-curriculum.** As faculty become more familiar with structures generating undergraduate research, faculty development can expand to consider inclusion of research in a variety of frameworks, such as introductory science laboratories, humanities colloquia, business seminars and educational internships.

- **Awards and recognition for faculty.** All recognition of student winners will equally credit their faculty sponsors. Awards programs for students will provide a certificate or a similar document, for inclusion in tenure and promotion notebooks, recognizing each research or writing contest winner. The Undergraduate Research website will run profiles on exceptional faculty mentors. The Center will recognize “Research Mentors of the Year” – considering both junior and senior faculty – and will advocate for inclusion of faculty with long-term commitments to undergraduate research for appointment as master teachers.

2. **Assessment**

    a. **Student database and actuarial data.** Assessment will begin with development of assessment instruments and execution of an all-campus survey to determine the current state of undergraduate research at Baylor. Quantitative or actuarial indicators of program quality include the number of students participating, the diversity of majors represented, the percentage of faculty serving as mentors, the number of students presenting or publishing research work, the number of students co-authoring refereed papers with faculty, increased enrollment in graduate and professional schools, student retention and, for the portion of the effort concentrating on freshman, improved retention and decreased
failure rates in introductory courses. Participating students should also demonstrate improved laboratory and professional writing skills.

b. **Student and faculty responses.** The Center for Undergraduate Research will establish a continuing program of data collection and encourage faculty and students to report projects and products. The Center will collect key demographic data, such as number and class of students participating by department, ethnicity and gender, as well as quantifying impacts such as publication participation and graduate admissions. The Center will quantify student inquires and website use. The Center for Engaged Learning will develop questionnaires for student and faculty researchers to determine the quality of the research experience and the acquisition of learning and research skills.

c. **Administrative benchmarking.** Assessment will be based on benchmarking (Alstete 1996) where the Center tracks changes in variables such as sophomore participation, completion of honors theses and integration of women in physical sciences through time. The Center will conduct a preliminary second-year administrative assessment, solicit a third-year external review and report benchmarks and provide a fifth- year evaluative white paper considering future trajectories.

<table>
<thead>
<tr>
<th>Table 4: Assessment Goals for Undergraduate Research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operational Goals and Student Learning Outcomes</strong></td>
</tr>
<tr>
<td><strong>I. Participation Goals</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>II. Skill, learning outcome, and engagement</td>
</tr>
<tr>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>reflecting Baylor’s overall demography.</td>
</tr>
<tr>
<td>2. Participation Goals (Seminars)</td>
</tr>
<tr>
<td>• Students will participate at an increasing rate.</td>
</tr>
<tr>
<td>• Seminar participants will enter research earlier and will be more likely to complete an undergraduate thesis or a final presentation.</td>
</tr>
<tr>
<td>3. Participation Goals (Research Meeting)</td>
</tr>
<tr>
<td>• Students will participate at an increasing rate.</td>
</tr>
<tr>
<td>• Meeting participants will display an increased rate of graduate admissions.</td>
</tr>
</tbody>
</table>
| Research Students will demonstrate gains in skills and learning engagement – overall strategy for assessment. | Surveys will assess:  
- attitudinal measures  
- student evaluation of the research experience  
- quality and number of student products, such as posters  
- quality and number of thesis projects  
- student motives for continuing in research or thesis tracks versus reasons for dropping out of these options | The Center for Learning Engagement will develop student questionnaires, and administer these to pre-project and end-of-project students.  
- The Center will interview students in learning communities, research tracks and the Summer Research College.  
- The Center will survey graduating seniors and alumni.  
- Baylor will continue to monitor NSEE findings. | The research students will exhibit higher scores on survey instruments, in terms of learning engagement and skills acquisition than students not entering research tracks. |

| 1. Faculty/student interaction and team participation | NSEE data  
Student evaluations and interviews | Freshman, pre-research and senior surveys | Research students will have higher scores than other students in “Active and Collaborative Learning” and “Faculty–Student Interaction.” Baylor seniors will be in the top quartile by FY11. |

| 2. Student challenge and engagement | NSEE data  
Student evaluations and interviews | Freshman, pre-research and senior surveys | Research students will have higher scores than other Baylor students in “Academic Challenge” and |
research seniors will be in the top quartile by FY 11.

| 3. Problem-solving ability and knowledge of discipline | • Data on grades, reviews of student projects  
• Data on progress to more sophisticated roles in research. | • Pre and end-of-research surveys  
• Peer and faculty evaluations | Research students will display greater academic improvement than expected for their cohort through the period of research participation. |

| 4. Communication skills and research competence | • Evaluations of products, such as theses, publications, and posters. | • Peer and faculty evaluations of products and presentations | 20 percent of research students will display competency adequate to publish in an undergraduate journal or to present at a regional science meeting.  
70 percent will display competency adequate to present at an undergraduate research meeting. |

*Credit: This table is based on a QEP by Georgia Institute of Technology (2005, pp. 28-29).*

### 4. Time frame

Since Baylor University does not have an all-campus undergraduate research program, the first year will be spent building administrative structure. The Advisory Committee and the Vice Provost for Research will interview potential faculty and student candidates for service in the program. Initial appointments will be a Director, Research Conference Coordinator and Grants and Fellowships Coordinator. The program will attempt to locate foundation support sources and begin interactions with development to attract endowed funds for fellowships. An emphasis on funding for under-represented students will begin in the first year. The Center will also make off-campus resources more accessible to Baylor students, such as the REU programs and research internships at
NIH and the National Laboratories. Baylor will join at least two national organizations committed to undergraduate research mentoring. The Center will invite faculty who already have undergraduate mentoring experience to participate in an off-campus development seminar in research mentoring or to visit successful programs at other institutions. Sending faculty observers to large undergraduate conferences and established summer colleges elsewhere will avoid common administrative mistakes.

The program will set up the writing prizes and summer research college for execution the following year and will organize a limited version of the research conference in the spring of 2008. The Summer Research College will begin with 20 students. In addition, the initiative will begin to offer research initiation seminars for students. The Center will review the first-year performance and make necessary adjustments, such as changing locales for the undergraduate research conference. In FY09, aside from increasing student participation, the Center will either solicit student papers themselves or will delegate the writing awards to another unit, such as the Honors College. The program will announce the first “Mentor of the Year” awards, and will offer on-campus faculty development activities, such as a summer seminar, staffed by Baylor faculty. In FY10 and FY11 student participation will continue to expand. In the fifth year, the Learning Assessment Committee will conduct a major fifth-year evaluation, using external reviewers.

Table 5: Timeframe for the Undergraduate Research Initiative

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Benchmarks</th>
<th>Activities</th>
</tr>
</thead>
</table>
| **FY06**  | • Construct Advisory Committee  
            • Complete draft final plan | • Advisory Committee writes final plan |
| **FY07**  | • Establish Undergraduate Research Center  
            • Begin fund raising  
            • Plan undergraduate research meeting  
            • Establish assessment database  
            • Hold first Undergraduate Research Meeting | • Locate office space, hire Director  
            • Hire staff  
            • Hire meeting coordinator  
            • Setup web site  
            • Meet with development, write development plan  
            • Recruit student leadership  
            • Develop internal assessment instruments  
            • Send faculty off-campus for development  
            • Acquire materials necessary for meeting, and offer prototype in the spring |
| **FY08**  | • Formalize grants program | • Schedule research meeting  
            • Hire Grants Coordinator |
4) Personnel, organization, and management

a. Financial support. On the low end, a basic program with a director, conference and summer college could be initiated for $40,000 without stipends for the summer college. A mid-range initiation should begin in the first year with $50,000 growing to $80,000 in the second year. A high-end effort will cost $300,000 annually. Minimum start-up needs are one faculty office (shared) and a work area for students large enough to prepare and store materials for the conference. As the program develops, an additional faculty office will be needed. By the fifth-year the summer programs should have their own office and materials storage. The initial set up needs four computers and two printers, one black/white and one a high quality color printer for producing posters. The program can begin utilizing Truell Hyde’s administrative and website staff. By the time the summer program reaches 50 to 60 students, an additional half-time office staffer will be needed. The program should emphasize use of student workers, estimated at $3,000 per year initially.

The director should receive the same stipend as a department chair ($5,000), with a course release to be negotiated. The home department could receive $4,000 for a teaching replacement. The faculty conference coordinator and grants coordinator should receive the same stipend as a departmental graduate director, at least initially ($2,000). If the grants coordinator is successful, better compensation is appropriate, and the position should self-support off overhead. The directors of the summer programs should receive percentage summer salary – 10 percent for the first director of the summer research college (the director will presumably also be engaged in half-time research). As the program grows this stipend could be raised to 20 percent. The director of the center could also become the director of one of the summer programs, funded much as a department chair is. In the fifth year, a student life coordinator will be needed for the summer program.
The office will need an initial supply budget of at least $3,000 and will need $2,000 for printing conference materials. Conference refreshments will depend on the organization of sessions. Assuming refreshments are primarily tied to seminars, cookie trays of $100 to $300 will cost about $2,000. If other schools are invited, the pizza lunches will cost about $150 each for about 10 locales or $1,500. Departments and programs could absorb the lunch. Baylor does not have enough frames and presentation boards for 100 posters or more, so these materials will have to be purchased. An investment of about $4,000 is necessary to accommodate poster expansion. The cost of the writing contest reception is $800, or $0 at already scheduled honors receptions.

b. Student awards, stipends and fellowships. The program will need certificates for the poster winners and their mentors. Book cards of $50 to $100 will suffice for writing prizes. The Mentor of the Year should receive a book card as well, for $300, for a total of $3,000 in the second year for awards. The summer college should open with a minimum of twenty tuition waivers for four credits each (three for research plus one for seminar). At an estimated $570 a credit times 80 credits to distribute, the value of this tuition is $45,600. Faculty mentoring students will receive research labor in return, however, estimated at $32,000. The actual tuition contribution, therefore, is $13,600. This system should eventually double to at least 150 credits. In addition, Baylor should add student fellowships. A suggested initiation is 20 at $2,500 each, either for two regular terms or for the summer, at a total expenditure of $50,000. These funds can, however, be slowly raised from donations.

The summer high school student program should be income generating and produce a profit, which can in turn support scholarships for under-represented populations. Since some student enrollees in the Summer College will pay tuition, and the additional students are dispersed among the faculty, no additional faculty lines are needed to support the program.

c. Faculty participation and development. Faculty support for the undergraduate research center and conference, as well as for funding for faculty and student activities, appears to be high. Consultants expressed concerns over the extra time required and the potential demands placed on mentors. Ultimately the best way to reward faculty for participation is through positive instructional and research evaluations and through promotion and salary increases, particularly for superior teaching. Provision of an adequate number of small grants and other financial incentives will encourage faculty buy-in. Course releases or stipends to develop undergraduate research lines would mitigate faculty perception that undergraduate research mentoring is “overload”. Other strategies include allowing departments to offer research seminars for small numbers of students for full class teaching credit, and allowing teaching credit for students conducting research even if not enrolled for hours (Malachowski 2003).

The minimum travel budget is $6,000 to send faculty to off-campus development opportunities. If student presentation winners attend a national conference, four students plus a faculty mentor will cost about $1,200 each or $5,000. Providing funding for undergraduate attendance at regional symposia can be as little as $1,000 per event. A starting budget of $10,000 with a cap of $2,000 would prime the pump. A small granting program for faculty and students will cost about $2,000 to $4,000 per grant. This is best
funded by endowment. An initial budget of $12,000 to $20,000 would start this activity. Development grants for individual programs or departments of about $10,000 will accelerate program initiation. This can be a terminal program to last no more than 8 to 10 years. A recommended $50,000 should be committed to these elements in the third year, if funds are available. The budget for these activities should slowly be replaced by endowment and grants.
IV. References

Internet sites (university names indicate undergraduate research pages): Butler University; Council for Learning through Undergraduate Research; Duke University; Massachusetts Institute of Technology; M.J. Murdock Charitable Trust; National Institutes of Health; National Laboratories: National Science Foundation; Project Kaleidoscope; Rice University; Rutgers University; San Angelo State University; Stanford University; Texas Technological University; University of Georgia; University of Maryland; University of Pennsylvania; University of Texas at Austin; University of Wisconsin Madison; Yale University BioSTEP.

Books and articles:
The proceedings and occasional publications produced by NSF, CLUR, NRC, NIH, Project Kaleidoscope and other organizations are extremely useful and not cited due to length limitations.


