Proposal for a New General Education Program

1. The current situation

Currently, different colleges have different general education requirements, ranging from 16-18 units of Humanities and Social Sciences in Engineering and Mines to the following shared structure for the Colleges of Science, Humanities, Social and Behavioral Sciences, and Education, and B.A. degrees in the College of Fine Arts:

I. Study Areas Total = 32 units
   A. Traditions and Cultures 9 units (3 units in non-western and 6 units in western)
   B. Biological and Physical Science 8 units (2 four-unit laboratory courses)
   C. Individuals, Societies and Institutions 9 units
II. Basic Proficiencies Total = 9 - 29 units
   A. Composition 6 units
   B. Mathematics 3 units
   C. Second Language Fourth-semester skill level is required.

The categories vary from college to college -- e.g., Engineering and Mines does not use the categories Traditions and Cultures or Individuals, Societies and Institutions. In addition, where the categories are the same the courses within the category can vary. For example, BPA shares with the Colleges of Science, Humanities, Social and Behavioral Science, and Education a 3 unit requirement in non-western civilization, but the courses specified for BPA are not identical with the courses specified for Science, Humanities, SBS and Education.

2. The New Proposal

Foundations

Mathematics: proficiency in one of three strands, varying with major

Composition: one of four strands, varying with placement

Second Language: fourth-semester skill level for all B.A. degree programs, second-semester skill level for all non-B.A. degree programs

Tier One

Traditions & Cultures 2 courses

Individuals & Societies 2 courses

Natural Sciences 2 courses

6 courses

Tier Two

Arts one course

Individuals & Societies one course

Humanities one course

Natural Science one course

4 courses of which one could be in major

NOTE: One course in a student's degree program must focus on non-western cultures or on race, gender, class, or ethnicity.

NOTE: Some Colleges and programs have been granted a partial exemption at Tier 2 and for language proficiency; see Section 4.

3. The Rationale

The following institutional issues offer a strong rationale for a change from the current college-based structure to a university-wide structure:

Issue -- Student Paths: When students change Colleges they often must take additional general education courses to satisfy the degree requirements of their new College. (Since roughly 50% of incoming students are undecided as to major and a recent study indicates that fewer than 20% of students graduate with the major they declared at entry, this is a significant issue. In Arts and Sciences alone, over 500 petitions to waive or replace general education courses are received every year, largely from students who began in other campus Colleges.) Further, because general education varies by College, students who transfer to the University from community colleges do not know how to prepare themselves unless they have made a choice of College. (Over one-third of the entering students in any academic year are transfer students and half of these come from Arizona community colleges.)

Issue -- Faculty Stakes: Current general education requirements place heavy obligations on the Arts and Sciences Colleges both for decisions about curriculum content and for teaching, leaving much of the University faculty without either a teaching or a curricular "stake" in general education.

Issue -- Institutional Responsiveness: The complexity of different competing general education programs makes it very difficult to anticipate demand and ensure space for all students in a timely fashion. A single general education program will facilitate modeling and meeting student demand. Given the mandated Hurwitz goals, limited faculty resources need to be used as efficiently as is feasible in order to maintain and increase offerings elsewhere in the curriculum.

Issue -- Pedagogical Expectations: General education courses are spread throughout the student's experience at the University. Nor only do students satisfy general education requirements on the basis of courses at every level of the curriculum (i.e. 100, 200, 300, and 400 level courses), but in addition many students take first-year general education courses during their junior or senior years. This situation prohibits faculty from building on a common basis of pedagogical skills and a minimum level of exposure to critical areas of inquiry in more advanced courses.

4. Responses to College Needs

A proposal intended to address these issues was presented to the faculty in fall 1994. The proposal was based on a 'core curriculum', a common set of courses that all undergraduates would take, distributed as follows:

- Foundations (composition, mathematics, second language requirements but lacking detail as to their character)

- Tier 1
    - Natural Science -- two courses
    - Individuals & Societies -- two courses
    - Traditions & Cultures -- two courses
- Tier 2 (area of major field excepted)
    - Natural Science -- two courses
    - Individuals & Societies -- two courses
    - Arts & Humanities -- two courses

The vision was that all students would take the same courses in Tier 1 and Tier 2, in classes of 150 each. Tier 1 was to be completed by the end of the first year of fulltime study; Tier 2, by the end of the second year of fulltime study.

Responding to the (sometimes competing) curricular expectations and demands of the colleges and their faculty members, the New Proposal (found on page 1) is a substantial modification of the original proposal.

A Core Curriculum: Many faculty members found the idea of trying to teach a single course to 4500 freshmen impossible from the beginning. The New Proposal maintains the idea that Tier 1 courses should be foundational, but allows the possibility that the foundational courses need not

be identical in either subject matter or delivery. Further, the guidelines for Tier 2 allow the possibility of considerable variety in terms of the courses offered.

Delivery: It is no longer expected that all Tier 1 and Tier 2 courses will be delivered in a single size, an acknowledgement that faculty members -- and students -- differ in where they work best.

Timing: Under the New Proposal, students will be expected to complete Tier 1 by the mid-point in their degree programs (rather than in the first year) and Tier 2 by the end of their degree programs (rather than in the second year). For many students, the first year would appropriately be devoted to Tier 1, but many students must reserve a good portion of this year to preparatory work in the major.

Second Language: With the understanding that the 1998 University entrance requirements will require two years of language in high school, the second language requirement was established in Fall 1994 as a skill requirement rather than a 'seat time' requirement and the expectation was set at the second semester skill level with the option that majors might demand more. This situation was unacceptable to most departments in Humanities and SBS and to some in Science who found the expectation too low. As a result, others worried that there would be a patchwork of language requirements, creating new difficulties for students. A compromise was struck that required all students with a B.A. objective to demonstrate fourth semester skill level and all other students to demonstrate second semester skill level. Further, if a student cannot demonstrate second semester skill level at entrance and is required to take coursework to meet this requirement, the second language units would not be included in the credit hours computed as part of the degree program. This policy is consistent with the treatment of English 100 and Mathematics 116. However, the College of Engineering and Mines feels any University-level language requirement for Engineering students that cannot be met at entrance is without precedent among its competitors. Thus, students graduating in the College of Engineering and Mines will be allowed to meet the language requirement with two years of a language in high school and a placement examination at entrance.

Mathematics: In first responses to the initial proposal, it was proposed that there be no independent mathematics requirement in general education, but that mathematics be taught as part of Tier 1 and Tier 2 coursework. Given the very broad range of mathematical abilities presented by our undergraduates, this seemed unworkable to many. A compromise was reached whereby all students will be required to take mathematics, but the skill level is specified by the major (and so may be met as part of or a prerequisite to the major). In addition, a terminal course in mathematics has been developed for the general student to replace College Algebra.

Composition: The issue of how best to develop student writing abilities has been contentious from the beginning. Many believe that rather than free-standing composition courses, each Tier 1 and Tier 2 course should have associated with it a 1-unit section devoted to the development of writing; others are just as firmly committed to composition courses. Under the New Proposal, most students will be required to take two semesters of composition, but there is the option of developing courses within Tier 1 to replace an independent composition course for well-prepared students.

Tier 1 Natural Sciences: The expectation in the initial proposal was that all undergraduates would share a single integrative science curriculum in Tier 1. However, the concern was expressed in Engineering and Mines and in other science-heavy majors that this would add units to the degree, because students in these programs required particular science experiences not required by the non-science student. A compromise was reached that allows majors in the College of Engineering and Mines to satisfy their first tier Natural Science with their required chemistry and physics coursework; other technically-based majors may petition, with their dean's approval, a similar arrangement.

Non-Western Civilization and Gender, Race, Class and Ethnicity: Only the general education program shared by the Colleges of Science, Humanities, SBS and Education currently requires both a course in non-western civilization and a course focusing on gender, race, class and ethnicity. Many in Humanities and SBS would like to see both requirements extended to all undergraduates. However, other colleges where neither is a requirement find this a disproportionate commitment within general education. Further, it does not appear that we have the faculty resources to offer sufficient seats to meet both for all undergraduates. (See page 6.) The compromise, then, is that every undergraduate would be required to take one or the other.

Composition of Tier 2: The first idea was that 4 courses (a minimum of 12 units) be required in Tier 2, distributed across two study areas (two of Individuals & Societies, Arts & Humanities, and Natural Sciences). The number of courses was seen by many as too large; further, this configuration substantially increased the number of units in science for many colleges; it did not specify a place in the curriculum for either arts or humanities, a lack felt most keenly by the College of Fine Arts. A compromise was reached that reduced the number of courses outside of the major in Tier 2 overall from 4 to 3, reduced the number of courses in science (from two in Tier 2 to one), and specified a place for fine arts and humanities. In addition, because of the unit load for their majors, students in the College of Engineering and Mines and the School of Health-Related Professions are required to take only two non-science courses in Tier 2 -- one course in Arts & Humanities and one course in Individuals & Societies. Other majors with a

comparable unit load may petition the University-Wide General Education Committee for a similar arrangement.

Laboratories: Many, but by no means all, faculty members believe that a laboratory experience is an essential part of general education science. Although the New Proposal does not specify a traditional laboratory, the laboratory experience is embedded in the program in two ways. First, the Tier 1 Natural Science courses that have been proposed do not generally include a free-standing laboratory, but all of them involve hands-on experience for students. Second, the Tier 2 Natural Science courses will be drawn from the current stock of science courses, the vast majority of which do include a more traditional laboratory experience. Further, the College of Science has committed to making the resources available to ensure that Tier 2 Natural Science courses can include a laboratory experience.

Sequencing: Because they are foundational, it is reasonable to require that students will complete the foundations courses at the very beginning of their academic career. Similarly, it follows that students should complete Tier 1 Natural Science before Tier 2 Natural Science and Tier 1 Individuals and Societies before Tier 2 Individuals and Societies. However, Tier 2 Arts and Tier 2 Humanities lack Tier 1 counterparts. At least in the Fine Arts, there is a strong feeling that students should be allowed to complete Tier 2 Arts without having to complete Tier 1. This can be accommodated. It remains to be determined how the instructors of Tier 2 Humanities courses feel about the sequencing of their courses.

5. Student Input

Students have been involved at all stages in the development of this proposal.

- Students were represented on all nine ad hoc committees established in 1994 to discuss various aspects of a new general education structure.
- The Undergraduate Council, the Instruction and Curriculum Policy Committee and the University-Wide General Education Committee, the major standing committees involved in the development of this proposal, all include student representation.
- In 1994 and 1995 , the Vice President for Undergraduate Education presented the vision and the then-state of the proposal to the ASUA Senate. Both times the ASUA Senate approved. In 1996, a presentation was again given to the ASUA Senate for comment; again, the response was supportive.

6. Resources: Course Availability

It is relatively easy to estimate the number of seats required in each area in Tier 1, Tier 2 and the Foundations. Approximately 4500 freshmen and approximately 2500 transfer students enter the University every fall.

- Composition and Mathematics: Virtually all freshmen require composition and mathematics; currently 40% of transfer students require composition and mathematics. Little change is expected in the near future. Thus, given that the University is currently meeting its obligations in these domains, it will be able to meet them with the same resources under the proposed changes.

- Tier 1 and Tier 2: Course availability has been tracked in Arts and Sciences general education for some years. The courses which satisfy the proposed curriculum will be similar but not identical to those currently satisfying general education in Arts and Sciences, but we can use our course availability figures as a measure of our capacity.
    - Tier 1, Traditions and Cultures: required space every semester 5500 seats (4500 from entering freshmen + 1000 from transfer students) Arts and Science Traditions and Cultures courses currently offer roughly 6300 seats per semester.
    - Individuals and Societies: required space every semester 7750 seats [Tier 1, Individuals and Societies: required space every semester 5500 seats (4500 + 1000) and Tier 2, Individuals and Societies: required space every semester 2250 seats (((4500 + 2000) - 2000 [for students majoring in Individuals and Societies areas]) 2 semesters))] Arts and Science Individuals, Societies and Institutions courses currently offer roughly 11000 per semester.
    - Natural Science: required space every semester 7000 seats [Tier 1, Natural Science: required space every semester 4250 seats (3500 (for students lacking science-based majors) + 750 seats (for transfer students)) and Tier 2, Natural Science: required space every semester 2750 seats (((4500 + 2000) - 1000 [for students majoring in science areas]) 2 semesters) Arts and Science Biological and Physical Sciences courses currently offer roughly 10000 seats per semester. However, many of these seats are in basic science courses which would not be part of Tier 1 Natural Science.
    - Tier 2 Arts: required space every semester 3000 seats ((4000 [excluding students with major in arts areas and a subset of Engineering and HRP students] + 2000) 2 semesters) Arts and Sciences Arts courses currently offer roughly 3200 seats per semester.
    - Tier 2 Humanities: required space every semester 3000 seats ((4000 [excluding students with major in humanities areas and a subset of Engineering and HRP students] + 2000) 2 semesters) Arts and Sciences literature courses currently offer roughly 2100 seats per semester.
    - Gender, Race, Class or Ethnicity and Non-Western Civilization: required space every semester 3250 ((4500 + 2000) 2 semesters). Gender, Race, Class or Ethnicity seats are currently approximately 3000 per semester; Non-Western Civilization seats are currently approximately 2400 seats per semester. (Note that if both gender, race, class, ethnicity and non-western civilization were required, the projected need would be 6500 seats per semester and our current capacity is 5400.)

Tier 2 Humanities is the one area where a shortage is revealed by this method. However, a portion of the excess in Tier 1 Traditions and Cultures could easily become Tier 2 Humanities.

Humanities 250a-b-c is an obvious candidate and the intent of the Humanities Program is that this course should be Tier 2 Humanities.

- Second Language: Currently 74% of entering freshmen bring 2 or more years of a second language. With the change in the high school entrance requirements for language in 1998, the Center for Research on Undergraduate Education projects that roughly 87% of the incoming freshmen will bring 2 or more years of a second language. A smaller proportion of transfer students currently bring in 2 semesters or more of a second language -- approximately 30%. It is reasonable to expect an increase here as well -- to 50%. The projected demand for language courses generated by one year of students, thus, can be easily estimated:
    - first semester: Roughly 60% of the current first semester language enrollments.
    - second semester: Roughly 133% of current second semester enrollments
    - third semester: Roughly 90% of third semester enrollments
    - fourth semester: Roughly 133% of current fourth semester enrollments.

While there will be a shift away from first semester language study toward second and fourth semesters, little or no increase is projected in the total number of students served. Given that the University is currently meeting student demand for basic language study, it should continue to be able to do so using the same resources under the proposed changes.

It is reasonable to conclude, in light of these projections, that the proposed restructuring of general education could allow us to deliver this portion of our curriculum more efficiently than is currently the case.

7. Resources: Teaching Assistants

Graduate assistants currently deliver the bulk of basic language and composition; adjuncts deliver the bulk of entry-level mathematics. If the current system is satisfactory, no changes need be made to deliver the new curriculum.

Graduate assistants are also involved in various support roles in current general education. But because the allocation of this resource is determined college internally, the availability and quality of graduate assistants varies widely from program to program. Although deans and department heads must remain central to decisions about the distribution of graduate assistants, some guidelines would be useful and would clarify resource issues.

- A ratio of one graduate assistant for every 60 students in Tier 1 and Tier 2 courses is reasonable to use in projecting needs. In addition, laboratory science courses generally have one graduate assistant for roughly every 35 students. Ignoring class size and assuming that every class has a teaching assistant, this ratio yields the following:
    - Tier 1 Traditions and Cultures: 92 graduate assistants per semester
    - Tier 1 Individuals and Societies: 92 graduate assistants per semester
    - Tier 1 Natural Science: 71 graduate assistants per semester
    - Tier 2 Individuals and Societies: 38 graduate assistants per semester
    - Tier 2 Natural Science: 79 graduate assistants per semester

- Tier 2 Arts: 50 graduate assistants per semester
    - Tier 2 Humanities: 50 graduate assistants per semester

The teaching assistant resources currently exist within the Colleges to accommodate the projections. In fact, in most cases, Tier 1 and Tier 2 needs would require less than half of the teaching assistant resources that might reasonably be available. One issue that remains is how to ensure that instructors from departments without graduate students or with few graduate students receive the appropriate teaching assistant support. The primary example of such a unit is the Humanities Program; under the scenario sketched above, this unit might reasonably require 6-10 GATs. This doesn't necessarily require new resources, but it may require some reallocation of resources.

- The teaching assistant model might be modified, at least in Tier 1 courses, to a teaching team model: the instructor/instructors, graduate assistants, and undergraduate preceptors. Undergraduate preceptors are used successfully now in many departments on campus to support instruction. A reasonable ratio is 3 preceptors for every graduate assistant.
- Graduate assistants involved in the delivery of Tier 1 courses should be advanced graduate students who have shown through prior teaching experience excellent teaching skills. This means that the training and assessment systems for teaching assistants should be enhanced.

8. Classrooms

Two problems with classrooms have confronted faculty members teaching lower division classes. (1) The classrooms have been in poor repair, with little or no equipment. (2) The University's inventory of classrooms does not match instructional needs.

The first problem is in the process of being remedied. The classroom renovation project has targeted the most heavily used classrooms on campus for upgrading. In addition, all centrally scheduled classrooms have been equipped with basic teaching equipment and the number of classrooms providing high quality technological support has been significantly increased.

The Center for Research on Undergraduate Education has been working on a model to address the second problem. According to its projections, the University is most critically short in classrooms of size 60-69. The Integrated Instructional Facility will increase the inventory of such classrooms, consistent with our projected needs. The classroom renovation project can also provide a partial resolution of this problem by combining some small classrooms to make larger ones. Finally, the Office of Undergraduate Education will work with Room Scheduling to make Tier 1 and Tier 2 courses a scheduling priority.

9. Transfer Students

Students from other post-secondary institutions enter the University at various points in their undergraduate careers and, as a result, they present different challenges.

- If a student enters with a completed general education program from one of the state's community colleges, the University accepts this as completing our general education. This is a reasonable position to take in regard to students from other institutions as well.
- At the moment, however, most students enter having only partially completed general education. These students programs will need to be evaluated on a course-by-course basis; such a system is required for the present general education requirements and is currently in place. We do not foresee any articulation problems with the New Proposal that have not already been addressed and resolved under the current situation.

10. Implications for Departmental Curricula

One possible consequence of the New Proposal that departments might want to consider is some regularization of the curriculum. Foundation courses, Tier 1 courses, and other prerequisite courses would be reasonably numbered in the 100s. Many Tier 2 courses and introductory major courses would reasonably be numbered in the 200s; others might reasonably be numbered in the 300s. This would leave the 400s for advanced undergraduate coursework.

Some departments have begun to restructure their curriculum in response to these likely changes. The University will also have to consider the implications for curricular policies like the 42-upper division unit rule.

11. Benefits of the New Proposal

1. It will not require new resources for the University, although it may require some reallocation of resources, particularly in ensuring appropriate teaching assistant support.
2. The ability to meet student demand more efficiently under the new program will free up resources presently used for general education courses. Units can continue to use these resources in the present manner or to meet other curricular areas and needs. Simultaneously, the Hurwitz lower-division goals will be effectively met.
3. Because students will take Tier 1 courses during their first two years and because these courses will cover the development of a set of skills, faculty members will be able to have pedagogical expectations about their upper division students.
4. Students will be able to change colleges and majors with the assurance that the general education courses they have taken will continue to apply in their new programs.

12. Evaluation and Assessment

It is absolutely essential that the proposed curriculum be monitored for its effectiveness in addressing the problems which led to its inception. Three areas present themselves as possible points of assessment.

- Changes in student behavior

Minimally, we would hope for a decrease in the number of petitions filed about general education issues, a decreased time from entrance to declaring a major and a decrease in student reports of course inavailability. We have the capacity to monitor all these and other measures that might be developed.

- Changes in student learning

If the idea of providing foundational knowledge is sound, we should minimally expect our students to perform better in their advanced coursework and to perform better on the upper division writing proficienty examination. We have the expertise to develop a system to assess these and other measures of student learning

- Changes in faculty satisfaction

Many faculty members report dissatisfaction with teaching at the lower division -- for a variety of reasons. One test of the effectiveness of the proposed curriculum would be an increase in faculty satisfaction, as reported on questionnaires or other instruments.

The Faculty Senate could name a committee to participate in the development of such measures, to oversee their implementation, and to report back on their results within an appropriate length of time.