The UF Grand Challenges General Education Program

Introduction

In our continued efforts to improve the educational experience for all our undergraduate students, the University of Florida is developing an outstanding, distinctive General Education Program (GEP). We believe that every UF student should benefit from a liberal education that complements rigorous disciplinary programs in order to prepare them for successful careers on graduation, and that the GEP plays a crucial role in meeting those goals.

We are committed to providing every student with a GEP of the highest quality that is woven into the fabric of the UF experience and serves as a bridge between, an introduction to, and an integrator of, seemingly disparate disciplines. Our program should be focused, cohesive, interesting, lively, engaging, and reflect the institutional focus on research and creative works, knowledge creation, and the mission of educating people from diverse backgrounds to "address the needs of the world's societies". The current cafeteria-style GEP that allows students to take practically an infinite number of course combinations from a list of over a thousand courses is fragmented, fails to achieve these goals, and is furthermore diluted by credits that are taken at other institutions, many of which are high schools. A large percentage of our students complete less than a half of their general education credits at the university so are missing important components of a university-level liberal education which they are supposed to get here. They also lack common experiences that bind them together into a cohesive intellectual community that incorporates institutional culture and goals. To remedy this situation and achieve our goals, the university is embarking on the development of a discrete number of thematic, interdisciplinary bundles of courses around substantive and timely topics.

Grand Challenges Courses

The "Grand Challenges" were U.S. policy terms set in the 1980's to describe "fundamental problems of science and engineering with broad applications, whose solution would be enabled by high-performance computing resources … Today, the Grand Challenges are interpreted in a much broader sense …"[1] In fact, today there are many "Grand Challenges" that have nothing to do with science or engineering - such as "Securing Water for Food, All Children Reading, and Making All Voices Count"[2]. We believe that Grand Challenges should also include big questions, both contemporary and enduring, of importance in understanding the human

[1] "A Report of the National Science Foundation Advisory Committee for Cyberinfrastructure Task Force on Grand Challenges", NSF, March 2011.

[2] http://www.usaid.gov/grandchallenges

condition, human cultures and society, and the natural and physical worlds. Thus, we believe that a course that engages students to consider the basic question of "What is The Good Life?" through the lens of a cluster of Humanities disciplines is suitably characterized as a grand challenge.

The Grand Challenges Core

Making "What is The Good Life?" a mandatory Humanities course for all UF students matriculating in 2012 and after, was the first step towards transforming our GEP. We now seek to extend that structure to the Natural Sciences and Social Sciences general education areas to complete the transformation and meet our goals. However, lessons learned in that process have led to the decision to include a limited number of options in each area. Focusing on a very small number (at most five) of options, limited to multidisciplinary Grand Challenges in each area still meets our overarching goals and allows for greater student engagement and participation by research faculty.

We are now requesting faculty to come together in groups to develop proposals for multidisciplinary general education courses that focus on "Grand "Challenges". These proposals MUST be approved by the relevant college deans in order to participate in this competition. A few (maximum of 10) of these proposals will be chosen for full course development with the goal of being included in the GEP effective 2015. Specifically, as of that academic year, the university's GEP will require every student to take one of five Grand Challenges course in the Natural Sciences area and likewise in the Social Sciences. To be clear, the Natural Sciences consist of courses in the Biological (B) and Physical (P) Science areas.

To distinguish these new Humanities, Natural and Social Sciences courses from other general education courses, especially the newly developed "statewide core", we will refer to them collectively as the "Grand Challenges Core". This terminology also differentiates it from more generic "signature" programs – making it clear that this is a signature program that seeks to develop the learning outcomes of a liberal education within a specific, but not restrictive, context.

These outcomes are …

The statewide core requires students to complete five general education courses, one in each of the five areas of Communication, Computation, Humanities, Natural Sciences, and Social Sciences. All of these courses are lower division without prerequisites so can be completed early in the first year of postsecondary education. In fact, most students enter UF with credit for these courses through acceleration mechanisms. In order to guarantee some degree of intellectual maturity and ability to handle university-level material, courses in the Grand Challenges Core

may require students to complete all or part of the statewide core as prerequisites. However, these prerequisites cannot require specific courses in the statewide core; they can only require completion of the statewide core in a specific general education area. For example, "Completion of the Statewide Core in Social Sciences and Communication" could be used as a prerequisite for a Social Sciences course in the Grand Challenges Core.

Objectives for Grand Challenges Courses

Courses submitted for consideration for inclusion in the Grand Challenges Core must meet the following objectives. Each course should

1. Be interdisciplinary; involving participation from faculty in at least three colleges in three distinct disciplines.
2. Meet the objectives for the Social Sciences (S) or Natural Sciences (B or P) general education (GE) designation.
3. Focus on a topic/problem of major current global interest that can be analyzed using the tools/methods/skills developed in the course. Examples include some identified "grand challenges" such as:
    a. 21st Century Grand Challenges (http://www.whitehouse.gov/blog/2012/04/09/21st-century-grand-challenges)
    b. Grand Challenges for Development (http://www.usaid.gov/grandchallenges)
    c. Grand Challenges for Engineering (www.engineeringchallenges.org/)
    d. Grand Challenges in Global Health (http://www.grandchallenges.org/Pages/Default.aspx)

    The course does not need to be included on a recognized list of "grand challenges" but the topic should be of such importance that it could be considered a "grand challenge".
4. Include a critical analysis of the problem from various perspectives including those that are relevant to the area of the applicable General Education designation(s).
5. Require students to explore possible solutions, or ideas that are significantly related, to some component of the identified problem. Ideally, students should be required to create or design a product or develop an idea, process, or system related to some aspect, or effect, of the problem of interest.
6. Require students to design solutions to multidisciplinary problems. The students may not have the technical skills or knowledge required to tackle any aspect of the particular

challenge, but there must be some related problem that the student is required to "solve".

7. Develop students' creative thinking skills.
8. Develop students' ability to communicate knowledge, ideas, and reasoning clearly and effectively in written and oral forms. The level of development and assessment of these skills does not need to rise to that of a "Writing Requirement" course.
9. Include additional course objectives from the following areas: Innovation, Diversity, Entrepreneurship, Ethics, Internationalization, and Leadership.

A signature course may be at the lower or upper division. This flexibility allows the upper division signature courses to count as electives in degree programs. Upper division courses must require completion of the statewide core as a prerequisite. The prerequisites for a signature course can only include courses in the statewide general education core. So, an upper division signature course cannot have another upper division signature course as a prerequisite.

Call for Proposals for Grand Challenges Courses

The Office of Undergraduate Affairs is requesting colleges to submit proposals for general education courses in the Natural and Social Science areas to be included in the Grand Challenges Core.

Proposals do not need to include a complete syllabus but must include the information requested below.

1. State the "grand challenge" that is addressed in this course and provide a justification for your claim that this problem should be regarded as a grand challenge.
2. State the course objectives.
3. What are the required texts?
4. List the weekly course schedule of topics to be covered.
5. How will the students be graded? Include a brief description of the types of assignments (homework, quizzes, tests, papers). Indicate if the tests/exams will be done online, or in face to face environment, proctored, or un-proctored.
6. What General Education designations will you request for this course? Explain how the course meets the objectives for these areas.
7. State any other GE designations that the course is expected to meet and explain how the course satisfies the GE objectives for that area.

8. Describe the structure of the course. For example large lecture with small discussion sections, 100% online with no discussion sections, hybrid with 50% online and 50% face to face., etc.
9. Will each section be taught by a single, or several faculty and what will be the status of these faculty (tenure track, lecturers, adjunct)?
10. How will the course structure integrate faculty in the different disciplines.
11. Describe the administrative/oversight structure of the course. Will there be a course coordinator? What will her/his duties be? What role will the college deans play in the course?
12. Describe the number and type of faculty expected to teach the course. Will the course be taught using any innovative pedagogy or technology?
13. State all colleges that will contribute to this course. Include the names and signatures of college deans indicating agreement to offer, manage, and support this course.
14. Designate a single contact person for this proposal. All communication from the Provost's Office regarding this proposal will be sent to this contact so they will be held responsible for maintaining communication with the colleges involved. The Provost's Office will not assume responsibility for any communication with individual colleges.

Note: More details need to be included regarding submission deadline etc., but I wanted to get this out as soon as possible for tomorrow's meeting.