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**New Program Proposal  
Interdisciplinary Ph.D. Healthcare Genetics  
With Tracks in Ethics and Public Policy; Interventionist; and Bench Research  
Clemson University**

**Summary**

Clemson University requests approval to offer a program leading to the Interdisciplinary Ph.D. degree in Healthcare Genetics with tracks in Ethics and Public Policy, Interventionist, and Bench Research. If approved, the revised program proposal will be implemented in Fall 2008.

The Board of Trustees of Clemson University approved the proposal on October 22, 2005. The proposal was originally entitled "Interdisciplinary Ph.D. in Nursing and Genetics" when it was submitted for Commission review on November 14, 2006, and then sent to the Advisory Committee on Academic Programs on January 17, 2007. At that meeting, staff opposed the proposal on several grounds, including the fact that South Carolina already has two public institutions with three doctoral programs in nursing (USC-Columbia with a Ph.D. and a "D.N.P" or "Doctor of Nursing Practice" and MUSC with a Ph.D.) The three existing nursing doctoral programs have been unable to meet modest multi-year productivity goals. With existing public nursing doctoral programs, the state supports more than any other state; the U.S. has a total of 101.

In response to staff concerns of possible unnecessary duplication of effort in this program, Clemson offices revised the program in February 2007, including revision of the program's title and admission of students with non-nursing degrees. The institution withdrew the program temporarily on March 27, 2007, from consideration at a meeting of April 7, 2007, of the Committee on Academic Affairs and Licensing. Between then and September 2007 Clemson officials considered and rejected several alternatives to the Interdisciplinary Ph.D. in Healthcare Genetics. These alternatives were the Master of Science in Nursing with a track in Nursing and Genetics; the Ph.D. in Genetics with a track in Healthcare Genetics; and the M.S. in Genetics Counseling.

The current revision of the proposal was submitted to the Commission on September 28, 2007; was sent to the Advisory Committee for review at its October 11, 2007, meeting; and was unanimously endorsed by the Advisory Committee. The revision contained important changes, including: 1) renaming the program the "Interdisciplinary Ph.D. in Healthcare Genetics"; 2) changing the CIP code

from Nursing (511608) to "Human Genetics" (260806); 3) opening the program to students with relevant degree backgrounds other than a bachelor of science in Nursing (BSN) as minimal preparation; and 4) making certain other changes of language to promote the idea that the program was truly interdisciplinary.

At the December 6, 2007, meeting of the Committee on Academic Affairs and Licensing, Clemson officials pointed out that Clemson's master plan limits the growth and development of master's degrees in favor of pursuing doctoral degrees, which are expected to be funded through federal grants after the first year of their implementation. According to the institutional spokespersons, master's-level programs draw resources from and weaken undergraduate programs, because grants from the federal government are not available to finance them. On the other hand, generous federal grant assistance to doctoral programs strengthens undergraduate resources and promotes the university's research strength. Spokesmen also stated that since the institution lacks a medical school, the only way it can compete for federal funding outside the National Science Foundation is through the National Institutes for Health (NIH), and in this case, specifically, the NIH's Nursing Research office.

The revised proposal states that "The purpose of the program is to prepare interdisciplinary scientists to: extend the knowledge base relevant to healthcare genomics, translate research to advance the application of genomics in healthcare, and collaborate in interdisciplinary research and practice." The need for the program is to promote the use of genomic research technologies and information in the context of health, biology, and society. The Greenwood Genetics Center and other like facilities in the country need more "interventionist" genetics scientists as members of teams when dealing with genetics research and, according to Clemson officials, will hire graduates with skills bases to be taught in the proposed program. At the December 6, 2007, meeting a distinction was drawn between the role of graduates of this proposed Ph.D. program and genetics counselors, since the former will do the translational research and will interpret findings with the doctors and genetics counselors, while the genetics counselors will interface directly with the clients themselves.

The proposal attempted to measure "need" (i.e., student demand for this kind of program) by referring to the results of a Spring 2006 survey sent to 5,000 "healthcare providers" in the Upstate region of South Carolina, all of whom were Registered Nurses. No additional data had been gathered by Clemson as of December 6, 2007. Of these surveyed nurses, 128 stated that they would be interested in enrolling in this program within the next two years; an additional group of 119 stated their interest in enrolling within three to ten years. Given the reported high level of interest in the program, the institution's estimates for enrollment in the program are modestly set at six (6 FTE) in the first year, 12 (12

FTE) in the second year, 15 (18 FTE) in the third year, and 21 (20.7) in the fourth and fifth years of implementation. The narrative states that all interest expressed by potential students has come about without any advertising.

As required by the Commission's policy for new doctoral degree approval, the proposal was reviewed by an external evaluator. The evaluator was a member of the faculty of the College of Nursing of the University of Iowa. While she wrote different letters for each iteration of the proposal, she spoke only to the program's usefulness to nurses in each.

The first iteration of the proposal was endorsed by the representative from MUSC at the Advisory Committee meeting; the second iteration of the proposal was endorsed by the representative from USC-Columbia. All other institutional representatives present at these two meetings were supportive of the program, because as many expressed themselves, there is a perception of a large gap between supply and demand for Ph.D.-prepared nurse faculty members. Clemson's representative at the December 6, 2007, meeting of the Committee on Academic Affairs and Licensing stated that this is not a Ph.D. program in nursing, nor designed principally to produce nurse faculty. As such, the proposed program requires no approval beyond the Commission, including none from either the State Board of Nursing or the Collegiate Council on Nursing Education (CCNE).

The revised proposal states that the current number of faculty members for the program is adequate. The faculty will be drawn from multiple disciplines at Clemson University. Four nursing faculty members will teach in this program by the end of the fifth year of its implementation. One of those nursing faculty members has a background in genetics, but at the December 6, 2007, meeting Clemson's spokesperson assured the Committee on Academic Affairs and Licensing that three of six current nursing faculty vacancies will be filled by persons who either have a background in healthcare genetics or in healthcare disparities. Earlier, in response to staff inquiry, Clemson officials had stated that two of the other four nursing faculty members who will teach in this program will be replaced in their current responsibilities for the undergraduate nursing curriculum by qualified graduate students.

Other faculty teaching and advising in the program will be drawn from fields as diverse as sociology, higher education and administration, health policy, health administration, developmental psychology, economics, experimental psychology, microbiology, biological sciences, cellular biology, statistics. Two clinical geneticists will also be given adjunct faculty status and an internationally known genetic nurse scholar, according to the proposal, will bring "expertise and experience to the 'classroom.'" While Table 4 in the proposal shows that nine nursing faculty and 11 interdisciplinary faculty (i.e., non-nursing faculty) will be

involved in the program as an advisory group, the total number of faculty actually teaching and advising in the program, as shown in Table 5, will begin at four (1 FTE) in the first year of the program's operations (2007-08) and rise to six in (1.5 FTE) 2009-10 and then to eight (2 FTE) in 2011-12. Clemson officials also stated at the December 6, 2007, meeting that ten Clemson faculty members who work at the Greenwood Genetics Center will support this program as mentors but not as teaching faculty.

The curriculum will consist of a minimum of 70 credit hours (for those entering with a relevant master's degree) and a maximum of 90 credit hours (for those entering with a relevant baccalaureate degree.) Students may choose one of three program "tracks" (Ethics and Public Policy; Interventionist; and Bench Research). Core courses total 34 credit hours, of which 18 are in Nursing. Beyond the core, each student must choose one of three tracks, each of which has an additional 36 semester hours of credits required, including 18 credits in dissertation research. A total of three new courses (all in Nursing), which together constitute a total of seven semester hours of credit will be added to the Clemson catalogue to implement this program.

New costs for the program estimated by Clemson University for the first five years of the proposed program are for administration (\$186,591), faculty (\$465,440), graduate assistants (\$398,112), support staff (\$368,297), materials and supplies (\$110,000), equipment (\$110,000), and facilities (\$600,000). The institution has indicated that new wet laboratories and some substantial amounts of computer equipment will be required within the first five years of the program. Total costs for the program will begin in 2007-08 at \$199,352 and rise to \$266,068 in the second year; \$578,647 in the third year; \$591,141 in the fourth year; and \$603,232 in the fifth year. The total cost estimated by the institution for the first five years of the program's operations is \$2,238,440.

In addition to the funds for the program which will be available through tuition and annual state appropriations, the institution has also factored in estimated funds from federal grants for which Clemson will apply to support the program's operations. These federal revenues as outlined in the proposal are projected to account for \$5,000 in the first year; \$141,544 in the second and third years; \$341,544 in the fourth year; and \$541,544 in the fifth year of the program's implementation. Shown below are the estimated Mission Resource Requirement (MRR) costs to the state associated with implementation of the proposed program for its first five years. Also shown are the estimated revenues projected under the Mission Resource Requirement and the Resource Allocation Plan as well as student tuition.

Year	Estimated MRR Cost for Proposed Program	Extraordinary (Non-MRR) Costs for Proposed Program	Total Costs	State Appropriations and Grants	Tuition	Total Revenue
2007-08	\$196,296	\$0	<b>\$196,296</b>	\$5,000	\$43,420	<b>\$48,420</b>
2008-09	\$394,410	\$0	<b>\$394,410</b>	\$253,832	\$86,161	<b>\$339,993</b>
2009-10	\$398,045	\$0	<b>\$398,045</b>	\$367,213	\$87,518	<b>\$454,731</b>
2010-11	\$639,780	\$0	<b>\$639,780</b>	\$571,102	\$139,757	<b>\$710,859</b>
2011-12	\$634,327	\$0	<b>\$634,327</b>	\$908,666	\$139,079	<b>\$1,047,745</b>

Data listed under the column labeled "Appropriations and Grants" includes both annual state appropriations and the amount of federal grant funding which Clemson University has estimated from anticipated federal sources. These data demonstrate that if the new program meets its enrollment projections and contains costs as they are shown in the proposal, the program will be able to cover new costs with revenues it generates through the MRR and projected grants from the federal government by the third year of its implementation. Without the federal funds, the program will operate at a deficit each of the first five years of its implementation.

In the face of considerable concerns voiced by CHE staff and members of the Committee on Academic Affairs and Licensing about the need for the program, the resources for implementing the program, and the relative costs to the benefits of the program, the institution has remained steadfastly supportive of the idea to implement the Interdisciplinary Ph.D. in Healthcare Genetics. Likewise, to meet the concerns voiced about the program, the Provost of the institution made the following commitments at the meeting of December 6, 2007: 1)the Graduate Dean will annually monitor the program during the first five years of its implementation for mission attainment of enrollment goals for numbers and academic diversity and for measuring quality of research; 2)the institution will report to the Commission beginning with the second year of the program's implementation on success in obtaining federal grants from NIH-NR as found in

the proposal; and 3) the Commission will formally review the program in Fall 2013 for meeting all these goals.

### **Recommendation**

The Committee on Academic Affairs and Licensing commends favorably to the Commission the program at Clemson leading to the Interdisciplinary Ph.D. in Healthcare Genetics with tracks in Ethics and Public Policy, Interventionist, and Bench Research, to be implemented in Fall 2008, provided that no "unique cost" or other special state funding be required or requested and provided further that

- 1) The Graduate Dean will annually monitor the program during the first five years of its implementation for mission attainment of enrollment goals for numbers and academic diversity and for measuring quality of research;
- 2) The institution will report to the Commission beginning the second year of the program's implementation on success in obtaining federal grants from NIH-NR as found in the proposal; and
- 3) The Commission will formally review the program in Fall 2013 for meeting all these goals.