University Senate Agenda

All meetings are from 3:00 - 5:00 pm in the Auditorium of William T. Young Library unless otherwise noted.

Monday, May 4, 2009

1. Announcements
2. Memorial Resolution for Russ Williams pg. 2
3. Proposed New Degree Program: PhD Epidemiology and Biostatistics pg. 3 - 28
4. Proposed New Degree Program: MS Epidemiology pg. 29 - 44
5. Proposed New Degree Program: MS/PhD Reproductive Sciences pg. 45 - 82
6. New Degree Program: MS Clinical Research Design pg. 83 - 98
7. Proposed Change to BS Nursing (RN to BSN Option) pg. 99 - 110
8. Proposed Change to BA/BS Telecommunications pg. 111 - 115
9. Proposed New Graduate Certificate in Maternal and Child Health pg. 116 - 126
10. 2009 - 2010 Winter Intersession Calendar pg. 127
11. Proposal to Change Foreign Language Requirement (second reading and vote) pg. 128 - 134
12. Curricular Teams' Course Templates (second reading and vote)
    - Co-Curricular Team Update
    - Templates pg. 135 - 157
    - Appendices pg. 158 - 167
13. Proposed Changes to *Admin. Regulations II-1.0-1* (Combined Version) (for endorsement) pg. 168 - 184
14. Proposed Changes to *Administrative Regulations II-7.0-1* (*3:14*, "Faculty Practice Plans") (informational presentation) pg. 185 - 198
15. Provost's State of Academic Affairs Address

Next Meeting: **Monday, September 14, 2009**

RESOLUTION OF THE UNIVERSITY OF KENTUCKY
UNIVERSITY SENATE
MAY 4, 2009

WHEREAS, Russell Glenwood Williams, II, staff representative of the University of Kentucky Board of Trustees, passed away April 8, 2009, and

WHEREAS, he was elected to four consecutive terms of the Board of Trustees by his fellow staff members, and

WHEREAS, he boldly took issues impacting staff to the Board of Trustees and represented all staff with unwavering dedication, and

WHEREAS, he was instrumental by working many hours with a small group of staff helping to organize and implement the Staff Senate as the official body representing the staff to the administration in July 2002, and

WHEREAS, his willingness to share his knowledge and wisdom helped develop countless leaders within the University Staff, Student, and Faculty communities, and

WHEREAS, he was a beloved mentor, friend, and staunch advocate for countless employees, and

WHEREAS, he was a valued member of the campus community, working as Senior Training Specialist for Human Resources, and

WHEREAS, he sought to communicate with each and every staff member by maintaining a listserv, launched a website for blogging, and always made himself available to staff and their concerns, and

WHEREAS, he was a UK alumnus, earning his bachelor's and master's degrees in social work,

NOW THEREFORE BE IT RESOLVED, that the University Senate of the University of Kentucky mourns the passing of a dear friend and colleague, offers condolences to his family and friends, and orders that this resolution be made a part of the Minutes of the meeting.

Bart Miller, Chair
University of Kentucky Staff Senate
University Senate, Ex Officio
May 4, 2009

UNIVERSITY OF KENTUCKY

Dream · Challenge · Succeed

COLLEGE OF PUBLIC HEALTH

MEMORANDUM

TO: **Health Care Colleges Council**

FROM: **Linda A. Alexander, EdD**
Associate Dean for Academic Affairs

SUBJECT: **New Program Proposal – PhD in Epidemiology and Biostatistics**

DATE: **July 18, 2008**

It is the intention of the College of Public Health to begin offering a new degree program – a PhD in Epidemiology and Biostatistics.

In November 2006, our college applied to the Kentucky Council for Post-Secondary Education for permission to develop a proposal for this new degree. The CPE posed several questions of us, which we answered, and on December 19, 2006, Provost Subbaswamy received notification that the CPE granted permission for us to develop the program.

This degree is an integrative doctoral program that will equip future researchers with substantial methodological and quantitative skills in the the disciplines of epidemiology and biostatistics, as well as advanced research-oriented training in both theory and methodology. Practicing MDs, DMD, PharmDs, and other health professionals who are interested in conducting population-based research and clinical trials will be the targeted audience for the degree; Master's-level graduates in the areas of psychology, computer science, engineering, business, biology, or chemistry may also find the degree program attractive.

After the full proposal was completed, it was reviewed and approved by the Academic Affairs Committee and the Faculty Council, according to our college's established bylaws.

Further information about this course can be obtained by contacting Dr. Richard Kryscio at 257-4064 or via email at kryscio@uky.edu.

Office of the Dean
121 Washington Ave., Suite 112 · Lexington Kentucky 40536-0003
(859) 218-2247 · *fax* (859) 323-5698
www.mc.uky.edu/PublicHealth
An Equal Opportunity University

From: Graduate.Council.Web.Site@www.uky.edu
Sent: Thursday, November 13, 2008 6:05 AM
To: Nikou, Roshan
Cc: Price, Cleo
Subject: Investigator Report

AnyForm User: www.uky.edu
AnyForm Document: http://www.research.uky.edu/gs/GCInvestigatorReport.html
AnyForm Server: www.uky.edu (/www/htdocs/AnyFormTurbo/AnyForm.php)
Client Address: 74.140.171.78

College/Department/Unit: = PhD in Epidemiology and Biostatistics
Category:_ = New
Date_for_Council_Review: = November 13, 2008
Recommendation_is:_ = Approve
Investigator: = Brett Spear
E-mail_Address = bspear@uky.edu
1__Modifications: = Change CIP code to 26.9999 as per recommendation from Dr. Kert Viele to more accurately reflect the emphasis of content in the Epidemiology and Biostatistics in the College of Public Health. Dr. Viele will be able to better explain the need for this change.
2__Considerations: = Overall, this appears to be a solid program that serves a need. It is felt that there will be a sufficient number of students to keep this program going, and that there will be a variety of job opportunities in the areas of academia, industry, and health services for students having this degree. This program also utilizes the strengths of three departments - Epidemiology (College of Public Health), Biostatistics (College of Public Health) and Statistics (College of Arts and Sciences). The schedule of classes and courses (core courses and electives) seems to be reasonable.
3__Contacts: = Spoke at length with Dr. Kryscio. Several questions that were discussed at length are below.

1. This curriculum involves a number of new courses. Will this result in an excessive burden on faculty? Dr. Kryscio felt that this was not a concern. Several new faculty have been hired recently, and participating faculty are from three departments.
2. Are all three departments have a good working relationship, and are committed to make this program successful? Dr. Kryscio felt that the departments have learned to work together in past initiatives and should continue to do so here.
3. Is there a need for graduates with training in Epidemiology and Biostatistics? Dr. Kryscio stated that there are numerous studies indicating that there is a very strong need for those with this training, and that this need is likely to increase in the future.

Another concern I had was whether this program places a strong emphasis on research. A review of the goals, curriculum, and participating faculty indicates that this will be the case.
4__Additional_Information: = This new program includes a number of new programs. Descriptions of these programs are included with this program proposal. However, proposals for these courses have not been submitted to the Graduate School. I would recommend approval of this program contingent upon review and approval of all new courses.

—
AnyForm/PHP3 0.1

AnyFormRandomSeqNo: 53190534

UNIVERSITY SENATE REVIEW AND CONSULTATION SUMMARY SHEET

Proposal Title: **PhD in Epidemiology and Biostatistics**

Proposal Contact: Dr. Richard Kryscio, Chair, Department of Biostatistics
College of Public Health
121 Washington Avenue, Room 200
CAMPUS 0003
Phone: 257-4064
Email: kryscio@uky.edu

Becki Flanagan, Academic Affairs
218-2092 becki@uky.edu

Instruction: To facilitate the processing of this proposal please identify the groups or individuals reviewing the proposal, identify a contact person for each entry, provide the consequences of the review (specifically, approval, rejection, no decision and vote outcome, if any) and please attach a copy of any report or memorandum developed with comments on this proposal.

Reviewed By	Contact person	Consequences of Review	Date of Proposal Review	Review Summary Attached?
Council on Post-Secondary Education	James Applegate	Approved	12/19/2006	Yes
Academic Affairs Committee	Marta Mendiondo, Chair	Approved	6/17/08	Yes
Faculty Council	Glyn Caldwell, Chair	Approved	6/26/08	Yes
Office of Academic Affairs	Linda Alexander, Associate Dean	Approved	7/18/08	Yes

HCCC approved on 8/19/08

UNIVERSITY OF KENTUCKY

College of Public Health
Department of Biostatistics
121 Washington Ave., Suite 201
Lexington, KY 40536-0003
(859) 257-5678 Ext. 82097
Fax: (859) 257-6430
http://www.mc.uky.edu/PublicHealth

Members of HCCC,

The attached paperwork includes all supporting documents for a new program "PhD in Biostatistics and Epidemiology" that is being submitted to your committee for review. This program has been approved by the Department of Biostatistics, Department of Epidemiology, Academic Affairs Committee, and Faculty Council within the College of Public Health.

Collectively the Departments of Biostatistics and Epidemiology have thirteen faculty members in the regular title series and eight adjunct faculty members who are excited about the prospect of this new degree and the opportunity it presents to teach advanced graduate level courses that complement their individual research programs.

This degree will train students to work on the interface between epidemiology and biostatistics. With the increased availability of large health related data warehouses, challenging methodological and epidemiological problems arise. In order for universities to reach out into the community by transferring research findings that will affect the health of the population in a meaningful way, innovative research design and epidemiological issues must be addressed. To our knowledge, this is the first formal combined doctoral program offering core training in both biostatistics and epidemiology in the country. The field of biostatistics has grown to the point that a new graduate program will have difficulty covering all relevant material; this program chooses to focus its biostatistics content on population based research emphasizing the issues practicing epidemiologists face. This program will put our graduates in a competitive position to address these timely and important issues.

The creation of this degree is aligned with the goals of our University to move into the top 20 research universities. The proposed program does not compete with any other doctoral program on campus and, in fact, complements other graduate programs. Enclosed please find a letter of support from the Chair of the Department of Statistics, College of Arts and Sciences. Four of the biostatistics faculty involved in this new program have joint appointments in the Statistics Department. Finally, the proposed program is also aligned with the mission of the new Center for Clinical and Translational Sciences that is emphasizing translation from the clinic into the community. This latter center is supported by the university administration as one of its priorities.

Please do not hesitate to contact us if there is any additional information that you need.

Sincerely,

Marta S. Mendiondo, PhD
Chair, PhD in Biostatistics and Epidemiology Committee, College of Public Health

Richard J. Krysco, PhD
Chair, Department of Biostatistics

Thomas Tucker, PhD
Chair, Department of Epidemiology

Stephen W. Wyatt, DMD, MPH
Dean, College of Public Health

UNIVERSITY OF KENTUCKY

College of Public Health
Department of Biostatistics
121 Washington Ave., Suite 201
Lexington, KY 40536-0003
(859) 257-5678 Ext. 82097
Fax: (859) 257-6430
http://www.mc.uky.edu/PublicHealth

Department of Statistics
College of Arts and Sciences

Statistics Department faculty members,

Several members of the Department of Biostatistics, College of Public Health have been closely involved with the development of the new track for the existing MS in Statistics and the creation of some of the new courses to be offered, some of which will be cross-listed. The final program proposal changes to the MS in Statistics have been presented and discussed at several CPH Biostatistics Department faculty meetings and it has the full support of the department and the College of Public Health.

Sincerely,

Richard J. Kryscio, PhD
Chair, Department of Biostatistics
College of Public Health

Stephen W. Wyatt, DMD, MPH
Dean, College of Public Health

UNIVERSITY OF KENTUCKY

Dream • Challenge • Succeed

DEPARTMENT OF STATISTICS

July 17, 2008

The Department of Statistics in the College of Arts and Sciences has been directly involved with the development of a joint doctoral program in Epidemiology and Biostatistics. After reviewing the Ph.D. in Epidemiology and Biostatistics new program proposal from the College of Public Health at several faculty meetings, the Department of Statistics in the College of Arts and Sciences fully supports its creation and we look forward to collaborating on the proposed cross-listed courses as well as new courses that may be developed in the future.

Sincerely,

Arnold J. Stromberg, Ph.D.

Chair, Department of Statistics

College of Arts and Sciences

817 Patterson Office Tower • Lexington, Kentucky 40506-0027
(859) 257-6115 • *fax* (859) 323-1973
www.uky.edu
An Equal Opportunity University

KENTUCKY COUNCIL ON
POSTSECONDARY EDUCATION

Ernie Fletcher
Governor

1024 Capital Center Drive, Suite 320
Frankfort, Kentucky 40601
Phone (502) 573-1555
Fax (502) 573-1535
http://cpe.ky.gov

Thomas D. Layzell
President

December 19, 2006

Kumble Subbaswamy
Provost
University of Kentucky
106 Gillis Building
Lexington, Kentucky 40506-0033

Dear Swamy,

The 45-day review period for the proposed Ph.D. in Epidemiology and Biostatistics has ended. Although programs in CIP 26 Biological Sciences/Life Sciences are inside UK's program band, this program is closely connected with the Statewide Public Health Strategy adopted by the Council in 2004. Because of the strategic importance of the Statewide Public Health Strategy, the Council is requesting that you submit a full proposal for this program.

In that full proposal, please make sure that you address the issues posted by the Council staff on December 13th:

1. The only other Ph.D. programs in these areas are at UofL. Although the enrollments are up somewhat in these programs from 2001-2005, degree production is down. In biostatistics, degree production in the masters program at UofL is down from 6 to 1 over three years. Only one doctoral degree was granted (in 2004-05) during this three-year period. Has UK discussed these degree production numbers with UofL? Why would higher degree production numbers be expected at UK?

2. How is this program different from the separate programs in biostatistics and epidemiology at UofL?

3. Given the low numbers of students currently involved in these areas at the doctoral level, has UK considered developing joint degrees with UofL?

4. Under an earlier Council policy related to public health programs, UofL was to offer research degrees and UK the practitioner degrees (DrPH). In 2004 the Council approved the Statewide Public Health Strategy which redefined the approach to public health in Kentucky.

How do these programs align with the strategy? What are UK's plans and timeline for implementing its part in the overall strategy of which these programs may be a part?

5. The January implementation date is not possible as this program will need to go before the Council for approval given its link to the Council- approved statewide strategy. The Council will want to consider these programs in light of general progress on the statewide strategy.

6. Given the combination of emphases in this program, there does not appear to be an appropriate CIP code for the program. It fits neither the CIP for Epidemiology or Biostatistics. This will require further discussion.

If you have any questions, please contact Melissa Bell at Melissa.Bell@ky.gov or 502-573-1555 ext. 357.

Sincerely,

James. L. Applegate
Vice President of Academic Affairs

Response to Comments from CPE
PhD in Epidemiology and Biostatistics

1. *The only other PhD programs in these areas are at UofL. Although the enrollments are up somewhat in these programs from 2001-2005, degree production is down. In biostatistics, degree production in the masters program at UofL is down from 6 to 1 over three years. Only one doctoral degree was granted (in 2004-05) during this three-year period. Has UK discussed these degree production numbers with UofL? Why would higher degree production numbers be expected at UK?*

   Degree production numbers at the University of Kentucky are expected to be higher because we have a strong feeder program in terms of our students enrolled in the Master of Public Health degree program, especially in the concentrations of epidemiology and biostatistics. Moreover, the number of students in the dual-concentration MPH (epidemiology/biostatistics) has steadily increased. This prompted us to examine and change the degree requirements to accommodate the growing increase of interest in the dual concentration. With the advent of our full accreditation by the Council on Education for Public Health (CEPH) in June 2005 and our selection as a pilot school for the launch of SOPHAS (spell out) in Fall 2006, we expect continued strong interest in both our MPH and DrPH programs.

   We have had students express an interest in the combined PhD program, and some students have sought the degree elsewhere because it was not available here.

   The development of this specific doctoral program has been discussed with both the University of Louisville (Dr. Rick Clover) and CPE (Dr. Jim Applegate); both offered their support for the University of Kentucky to move forward and initiating the process for approval. A discussion specifically about degree production numbers has not been initiated to date with the University of Louisville because of the interest expressed by our students specifically regarding a combined program.

2. *How is this program different from the separate programs in biostatistics and epidemiology at UofL?*

   The University of Louisville program is a combined program in Biostatistics and Decision Science. Our proposed PhD program is also a multidisciplinary degree program designed to provide the student with the skills to conduct applied research in the combined disciplines of epidemiology and biostatistics. Our faculty feel strongly that a graduate from a combined program is better prepared to confront emerging public health issues that increasingly require multidisciplinary solutions.

3. *Given the low numbers of students currently involved in these areas at the doctoral level, has UK considered developing joint degrees with UofL?*

   We have not considered developing a joint PhD program with the University of Louisville because we have not experienced low enrollment numbers as mentioned in the comments posted, and our interest at this time is in a combined program rather than in separate programs.

4. *Under an earlier Council policy related to public health programs, UofL was to offer research degrees and UK the practitioner degrees (DrPH). In 2004 the Council approved the statewide public health strategy which redefined the approach to public health in Kentucky. How do these programs align with the strategy? What are UK's plans and timeline for implementing its part in the overall strategy of which these programs may be a part?*

   Continued CEPH accreditation requires that we offer three additional PhD programs, other than our PhD in Gerontology. In the Spring of 2006, we raised this issue with the State-Wide Strategy For Public Health Education And Research and, as noted in our response to question #1, received the support of Dr. Jim Applegate and the University of Louisville for us to offer PhD programs.

5. *The January implementation date is not possible as this program will need to go before the Council for approval given its link to the Council-approved statewide strategy. The Council will want to consider these programs in light of general progress on the statewide strategy.*

   With approval of the program by CPE, we will begin to follow the University of Kentucky and CPE guidelines for the development and approval of new programs in January 2007. We anticipate recruiting students into the program no earlier than January 2008.

6. *Given the combination of emphases in this program, there does not appear to be an appropriate CIP code for the program. It fits neither the CIP for Epidemiology or Biostatistics. This will require further discussion.*

   Just as the University of Louisville combined PhD in Biostatistics and Decision Science is likely catalogued under the CIP code for a biostatistics doctorate, we are following a similar strategy. Since a CIP Code for a combined program does not currently exist, it has been agreed upon between our Epidemiology and Biostatistics Departments that the CIP Code for Biostatistics be utilized for this program. One way to view this program is that it is a doctoral degree in biostatistics with an emphasis in epidemiology.

REQUEST FOR A NEW PROGRAM

Degree title: PhD in Epidemiology and Biostatistics

Major title: Epidemiology and Biostatistics Option: N/A Major code in SIS:

Primary College: College of Public Health

CIP Code: ~~**26.1102 Biostatistics**~~ ~~**26.1309 Epidemiology**~~

USC Note	3/4/2009 3:05:17 PM
CIP Code for for PhD in Epidemiology and Biostatistics is 26.9999.	

Accrediting Agency: N/A

Contacts:

Marta S. Mendiondo marta@email.uky.edu	257-1412 x274
Richard J. Kryscio kryscio@uky.edu	257-4064
Thomas C. Tucker tct@kcr.uky.edu	219-0773 x225

I. Abstract

The proposed PhD program in epidemiology and biostatistics is intended to prepare professionals for a career in conducting population-based research and clinical trials. It is a unique program which strongly emphasizes the acquisition of applied skills in the complementary fields of epidemiology and biostatistics, as well as the theoretical foundations of these disciplines. Graduates of this program will be prepared to address the practical challenges of conducting population-based and clinical, translational research in the multidisciplinary work environments of academia, government, and industry. Unlike traditional doctoral preparation in either discipline alone, this program will leverage the unique collaborative environment between the departments of Biostatistics and Epidemiology in the College of Public Health. The essentially strong cross-training and mentoring nature of the program is intended to develop independent researchers who will be skilled in designing and conducting studies as well as analyzing, and interpreting the results from increasing variety of designs and databases in the public health and medical research domains.

This is intended to be an integrative doctoral program which prepares future researchers who will have substantial methodological and quantitative preparation in the unique domains of these two disciplines. This program is intended to provide advanced, research-oriented training in both theory and methodology. Scholars will be required to undertake a doctoral dissertation, following the completion of required course work and examinations, which will be of the caliber for publication as independent research in respected biostatistical, epidemiological, or statistics journals.

Second sentence of first paragraph, in its entirety: 15
"Practicing health care professionals with a bachelor's degree (MDs, DMDs, PharmDs, etc) who are interested in pursuing independent, doctoral level, research careers will be targeted for the program."

AUDIENCE

The target audience for this program will include students with an appropriate prior bachelor's or masters degree (in biostatistics, epidemiology, statistics, health services research, mathematical sciences, or a related field) with a prior mathematical training to include two semesters of calculus (univariate differential and integral which can be fulfilled by MA 113 and MA 114) and statistical methods (STA 580). Practicing health care professionals (MDs, DMDs, PharmDs, etc) who are interested in pursuing independent, doctoral level, research careers will be targeted for the program. Master's graduates from psychology, computer science, engineering, business, biology, or chemistry may also find this degree program attractive.

with a bachelor's degree

The program will prepare students for research oriented careers in population based studies and clinical research studies including clinical trials. There is a severe shortage of doctoral level graduates with training in epidemiology and biostatistics. This program is unique since it requires students to acquire proficiency in both areas. A terminal master's degree (MS) in epidemiology is embedded into the program.

NEED

There is an increasing need for research-oriented health professionals who will be qualified to conduct population-based research and clinical trials in the next several decades. The production of doctoral-prepared biostatisticians has remained steady while the demand has increased markedly with increasing opportunities in the biomedical research enterprise. At present, there is both a shortage of biostatisticians with some training in biology and disease process knowledge, as well as epidemiologists with an understanding of the new developments in the biostatistics, data management, and clinical trials research. There has been an intense demand for scientifically trained (subject matter) data analysts who can address the issues in conducting studies which include large amounts of complex data. The neurosciences, surveillance, and computational biology are expected to be growth areas which will demand the complex, integrated skill set of a new group of professionals.

Although the economy is slowing down, Smith Hanley reported that "Quantitative Professionals are secure . . . Recruiters at Smith Hanley have not seen signs of slowdowns in our markets . . . As many corporations are realizing the limitations of outsourcing their analytics overseas, they have turned to domestic consulting . . . This leads to a visible growing demand for quantitative professionals in consulting environments. ." (Burtch, Linda. Recession Talk Exaggerated re Analytical Job Market. *Smith Hanley Trends 2008*.)

II. Program Description

Competencies

The following competencies for the MS in Epidemiology are based on the core courses for the degree:

1. Understand the interface between biostatistics and epidemiology
2. Demonstrate advanced proficiency to apply concepts and methods from these disciplines jointly.
3. Demonstrate the ability to review and critically evaluate the literature in a substantive area of research, be able to identify gaps in knowledge and be able to formulate original research hypotheses or statements
4. Evaluate the strengths and limitations of epidemiologic reports.
5. Draw appropriate inferences from data.
6. Communicate research results orally and in writing to lay and professional audiences.
7. Demonstrate an understanding of concepts of probability and statistical inference as they apply to problems in public health.
8. Demonstrate proficiency in using computing tools commonly encountered in epidemiology and biostatistics.
9. Understand the principles of epidemiologic study design and be able to calculate the appropriate epidemiologic measures for most typical designs.
10. Become proficient at and be able to evaluate the strengths and limitations of advanced designs including multivariate linear models, generalized linear models, longitudinal models, mixed effects models, and survival models both parametric and nonparametric.
11. Understand the principles of chronic and infectious disease epidemiology.
12. Demonstrate an understanding of research methods used in epidemiology and biostatistics.
13. Demonstrate knowledge of the public health system in the commonwealth and the country.

Curriculum

58 pre-qualifying

Students will complete a minimum of ~~62~~ credit hours of study and ~~a~~ dissertation research. All requirements must be completed within the number of years determined by the graduate school (8 years at this time) of undertaking the program. The core curriculum consists of 39 hours comprising thirteen courses, including several courses in epidemiology and biostatistics, and a one-credit-hour course that will serve as a broad introduction to public health. Students will also complete a minimum of 15 credit hours of electives (including at least two epidemiology courses and two 700 level biostatistics courses), all of which must be approved by the student's dissertation committee and the DGS. In addition, the student must complete four one-hour seminars within the first three years and three semesters of dissertation credits(CPH 769). Students will be required to pass a Comprehensive Exam between the Fall and Spring semesters of their second year in the program. Also, students must pass a Qualifying

First sentence of "Curriculum" paragraph in its entirety:
"Students will complete a minimum of 58 pre-qualifying credit hours of study and dissertation research."

Oral Exam before beginning their residency credits. Students must complete at least two semesters in the 2 credit hour residency course, for a minimum of 4 hours.

All students will be required to pass a written examination after the completion of three semesters of coursework and an oral exam before proceeding with the dissertation research. The dissertation research is expected to be an original scientific project which is integrative in the sense that either advanced biostatistical methods are applied to a population-based epidemiologic study of sufficient size and appropriate design or original theoretical research is undertaken in biostatistics with applied research problems. Faculty will encourage a dissertation document which shall produce at least two manuscripts which will be of publishable quality, as well as an integrative literature review of the area of research. The scope of the project shall demonstrate independence, mastery of research skills, thoughtful reflection of the results, and contribute to new knowledge in the field of investigation.

This program will require the formation of a doctoral committee. No fewer than 4 persons shall constitute the doctoral committee. A least 2 of the members must be full members of the graduate ~~school~~. At least 3 of the 4 members must be faculty from the Departments of Epidemiology and Biostatistics (minimum of 1 from each department) in the College of Public Health. It is expected that the committee will meet on a regular basis to track student progress.

faculty

Pre-requisites
Bachelor's Degree
Calculus: Univariate Differential and Integral Calculus (may be fulfilled by MA 113, MA 114)
One course in Life Sciences
STA 580: Biostatistics 1

Applications for admission to the PhD program will be reviewed by the admissions committee. This committee will include the program's DGS and representatives from the Biostatistics and Epidemiology Departments in the College of Public Health. All admitted students must satisfy all the requirements of the Graduate School.

Core Curriculum (39 hours)
BST 675 Biometrics I
BST 676 Biometrics II
BST 639 Computing Tools
BST 760 Advanced Regression
BST 761 Time to Event Analysis
BST 762 Longitudinal Data Analysis
CPH 701 Current Issues in Public Health
CPH 605 Intro Epidemiology
CPH 712 Adv. Epidemiology
EPI 714 Epidemiologic Study Design
CPH 711 Chronic Disease Epidemiology
EPI 715 Research Methods in Epi & Bio
EPI 711 Chronic Disease Epidemiology

Seminars (4 hours)
Students must take 4 semesters of 1 credit hour seminar in the first 3 years (CPH 786).

Electives (15 hours)
5 courses- At least 2 epidemiology courses and 2 700-level Biostatistics courses. Must be approved by the student's dissertation committee.

Residency (4+ hours)
CPH 767 (2 credit hour course) will be taken each semester until they have completed and defended the dissertation. This course must be taken a minimum of two semesters.

Dissertation Research Defense
Students will present their dissertation research defense, presumably at the end of year four.

58
~~62~~ credit hours + Dissertation Research Defense

Typical Schedule of Classes for Full Time Student

	Fall	**Spring**
Year 1		
	CPH 605 Intro Epidemiology	CPH 712 Adv. Epidemiology
	BST 675 Biometrics I	BST 676 Biometrics II
	BST 639 Computing Tools	BST 760 Advanced Regression
Year 2		
	EPI 714 Epidemiologic Study Design	EPI 715 Research Methods in Epi & Bio
	BST 761 Time to Event Analysis	BST 762 Longitudinal Data Analysis
	EPI 716 Infectious Disease Epidemiology	CPH 711 Chronic Disease Epidemiology
	CPH 701 Current Issues in Public Health	

CPH 786 Seminar : 4 semesters of 1 credit hour seminar must be taken in the first 3 years
Comprehensive Exam (between Fall and Spring of year 2)
Qualifying Oral Exam (before residency credits)
Dissertation Research Defense after year 4

Year 3		
	Elective	Elective
	Elective	Elective
	Elective	
Year 4		
	CPH 767 Residency Credit	CPH 767 Residency Credit
		Dissertation Research Defense

List of Core Courses

BST 675 Biometrics I (4) This course, the first of a two-semester sequence in biometrics, introduces probability, discrete random variables, continuous random variables, and sampling distributions.

BST 676 Biometrics II (4) This course, the second of a two-semester sequence in biometrics, introduces techniques for constructing and evaluating point estimators, hypothesis testing procedures, and interval estimators.

CPH 605/ PM 720 Epidemiology (3) In this course students are taught the principles and methods of epidemiologic investigations, research methodology, and statistical integration. Major topics include etiologic factors of disease and injury, the distribution of health problems within populations, levels of prevention, and the concept of risk. The design of retrospective, cross-sectional and prospective studies are examined to illustrate odds ratio, relative risk, life tables, and person-years. Students are required to complete and submit a research proposal, present a topic paper, and serve as a co-facilitator for an article discussion.

CPH 712 Advanced Epidemiology (3) Provides an in-depth understanding of the evidence needed to show causal relationships and epidemiologic theories, concepts and tools used to establish causal relationships.

BST 639/ CPH 639 Computing Tools (3) Introduction to statistical and epidemiologic software technologies commonly used for the collection, management, and analysis of data. It is designed to prepare first year students for further coursework and dissertation research.

BST 760 Advanced Regression (3) This course provides an introduction to theoretical methods and applications of linear and generalized linear models. Regression methods for normally distributed outcomes will provide a discussion of experimental design, design matrices, and modes of parametric inference for the linear model. Students will learn to apply these concepts in sophisticated data analysis where they will implement tools for model building and selection, variable selection, and handling categorical predictors, confounders and interactions. Additionally, students will learn polynomial regression and flexible alternatives such as weighted least squares and robust, ridge and nonparametric regression. Regression methods for non-normal outcomes (focusing on binomial and count data) will be covered in detail, providing students with foundational tools for understanding and implementing generalized linear models that are commonly used to analyze epidemiologic and public health data from various study designs including but not limited to cohort, case-control, and clinical trials.

BST 761 Time to Event Analysis (3) Analysis of time to event data encountered in Public Health and Medicine. Survival distributions and hazard functions. Time to event analysis using Kaplan-Meier method and life-table method. Accelerated failure time model, logit model for discrete data, complementary log-log model, and proportional hazards model. Tests for goodness-of-fit, graphical methods, and residual and influence statistics. Time-dependent covariates, non-proportional hazards, left truncation, and late entry into the risk set. Sample size and power, competing risks, and time to event analysis with missing data.

BST 762/ STA 632 Longitudinal Data Analysis (3) This course presents statistical techniques for analyzing longitudinal studies and repeated measures experiments that occur frequently in public health, clinical trials, and outcomes research. This course will cover linear mixed models, generalized linear mixed models and an introduction to nonlinear models as they apply to the analysis of correlated data.

EPI 715 Research Methods in Epidemiology & Biostatistics (3) This course builds a broad array of skills that are useful for the design and development of research protocols and funding applications for peer review, and for the analysis of resultant scientific data.

EPI 714 Epidemiologic Study Design (3) This course provides students with advanced course material relevant to the planning and execution of epidemiologic studies of various designs. The course will consider study designs which employ routinely collected data on disease occurrence, such as would be undertaken in government agencies and health departments, and the classic etiologic study designs including the case-control, prospective cohort, retrospective cohort, nested case control, case-cohort, and case-crossover designs. The course will focus considerable attention on measurement methods and measurement error, borrowing examples from the subfields of epidemiology including occupational, cardiovascular, and social epidemiology. Given current interest on multilevel methods of analysis, the class will discuss approaches to designing multilevel studies. Finally, we will consider recent advances in experimental epidemiology with consideration of controlled community trials.

CPH 711 Chronic Disease Epidemiology (3) Provides students with an overview of the risk factors associated with the most common chronic diseases, data sources available about these diseases and epidemiologic theories, concepts and tools associated with these diseases.

EPI 716 Infectious Disease Epidemiology (3) Emphasizes the epidemiological and microbiological methods used to study infectious diseases including new, emerging, and re-emerging diseases. Include are the history,

epidemiologic concepts and tools needed to understand and investigate the maintenance, transmission, and effects of infectious disease in human populations.

CPH 701 Current Issues in Public Health (1) This seminar course will introduce MS and PhD students to the critical role of public health in protecting, maintaining, and improving the health of the population. Specific emphasis will be directed to the "Ten Essential Functions of Public Health" through weekly lectures, readings, and writing assignments. All five core areas of public health will be introduced

List of Electives

CPH 631 Design and Analysis of Health Surveys (3) Design and analysis issues associated with well known national health surveys, including reliability and validity of measurements, instrument validation, sampling designs, weighting of responses, and multiple imputations. Students will learn how to use statistical software to analyze data from complex survey designs.

CPH 636 Data Mining in Public Health (3) This course concerns statistical techniques for and practical issues associated with the exploration of large public health data sets, the development of models from such data sets, and the effective communication of one's findings.

BST 740 Spatial Statistics (3) This course covers the following topics: risks and rates, types of spatial data, visualizing spatial data, analysis of spatial point patterns, spatial clustering of health events based on case control studies, and based on regional counts, linking spatial exposure data to health events through regression modeling, Bayesian spatial analysis.

BST 763/ STA 665 Analysis of Categorical Data (3) Multinomial and product-multinomial models; large-sample theory of estimation and testing, Pearson chi-square and modified chi-square statistics, Pearson-Fisher Theorem, Wald Statistics and generalized least squares technique; applications to problems of symmetry, association and hypotheses of no interaction in multi-dimensional contingency tables.

BST 713/ STA 653 Clinical Trials (3) Design and analysis of Phase I-III clinical trials, interim monitoring of trials, sample size, power, crossover trials, bioequivalency, mixed models, and meta analysis.

BST 764 Applied Statistical Modeling for Medicine and Public Health (3) This course introduces some useful statistical models not typically encountered in the core courses of a master's or doctoral biostatistics curriculum.

These include finite mixture models, nonparametric regression models, covariance-based models, and stochastic models.

BST 765 Missing Data Methodology for Public Health (3) This course surveys methods for analyzing data with missing observations. This includes methods for data missing completely at random including hot deck cold deck, mean substitution, and single imputation; methods for data missing at random including multiple imputation and weighted estimating equations and methods for data missing not at random including pattern mixture models, selection models, and shared random effects models.

BST 766 Analysis of Temporal Data in Public Health (3) This course surveys methods for analyzing public health data collected over time. Methods covered include smoothing time series data, the modeling of stationary time series for Gaussian, dichotomous, and case count responses, methods for detecting the clustering of disease over time, and methods for the surveillance of infectious diseases in real time.

BST 701 Bayesian Modeling in Biostatistics (3) This course provides an introduction to Bayesian ideas and data analysis applied to the biosciences. The course illustrates current approaches to Bayesian modeling and computation in biostatistics.

CPH 610 Injury Epidemiology (3) Describes the distribution and determinants for traumatic injury and poisonings, including both intentional and unintentional events. Topics include: sources of data, methodological approaches to studying injuries, evaluation of injury interventions, and the link between epidemiology and public health policy impacting injuries.

CPH 614 Managerial Epidemiology (3) Reviews the fundamental principles of epidemiology and teaches students how to apply these principles to the management of health service organizations.

CPH 616 Cardiovascular Epidemiology (3) Provides students with an overview of the risk factors associated with cardiovascular disease. Also teaches students about variations in the frequency of risk factors and in the rates of cardiovascular disease by characteristics of person, time and place.

CPH 617 Environmental and Occupational Epidemiology (3) Provides students with an understanding of occupational and environmental exposures and their associations with specific health effects, and with the application of epidemiologic concepts and methods to describe and analyze these associations. Combines lectures on exposure assessment, study design and methodological issues, as well as discussion and presentation of topics focused on specific outcomes and exposures.

CPH 662 Public Health Response to Terrorism & Disasters (3) Focuses on public health concepts, history, methods, planning and response preparedness in response to a Weapons of Mass Destruction (WMD) terrorist attack, in both the nation and Commonwealth of Kentucky. Will discuss how public health methods can be applied to response planning and preparedness for such a bioterroristic WMD attack and improve the public health and medical infrastructure for response to natural disasters. Public health response includes surveillance of disease and laboratory reports for evidence of WMD attack, as well as epidemiological review of suspicious cases of illness potentially related to biological or chemical weapons.

CPH 718 Special Topics: Decision-Making in Health and Medicine (3) This course applies decision science theory to healthcare decision making. It is intended for epidemiologists, managers, and health behaviorists who want to understand the process of rational decision-making. Topics include (1) managing uncertainty, (2) treatment decisions, (3) valuing healthcare outcomes, (4) diagnostic test decisions, (5) prevention and screening, (6) tests with multiple outcomes, (7) cost-effectiveness, cost-benefit, and cost-utility analysis, and (8) modeling events that reoccur over time.

CPH 718 Special Topics: Oral Health Epidemiology (3) This course describes the concepts and principles of oral health epidemiology. The purpose is to use epidemiology principles and concepts and apply them to oral health related questions. This is an advanced, 700 level course, and will be intense. Although basic and intermediate/ advanced principles of epidemiology, biostatistics and oral biology will be reviewed early in the course, students are expected to have good working knowledge of these subject areas. Students are not expected to have a background in dentistry, but their biology, math and critical thinking abilities are expected to be worthy of the level of this course. The course includes discussions of the theory and methods of epidemiology, biostatistics and biology, sociology and philosophy and their applications to oral health.

CPH 718 Special Topics: Cancer Epidemiology (3) This course applies and integrates the principles and tools of epidemiology to the study of cancer. The course includes discussion of the burden of various kinds of cancer across the United States and the world by age, gender, and race/ethnicity, the underlying biology behind the development of cancer in humans, cancer surveillance, the epidemiology of various kinds of cancer by category of major risk factors such as human behavior (e.g. smoking and alcohol use), endogenous/exogenous hormones, viruses, environmental/ occupational, and diet, and sources of data and methods for evaluating cancer screening, measuring the impact of risk factors, determining the incidence of cancer and cancer clusters, measuring patterns of care, and understanding the determinants of survival.

CPH 718 Special Topics: Cancer Molecular Epidemiology (3) This course will consist of lectures relating to the principles of molecular epidemiology, cancer prevention, and control. Lectures include: Biomarker Discovery using proteomic techniques, Cancer Screening, Genomics and Pharmacogenomics, Cancer susceptibility: Single Nucleotide Polymorphisms and DNA Damage and DNA Mismatch Repair Genes, Cancer Risk Assessment, Cancer Diagnosis and Prognosis, Cancer Theragenosis, and Transitional Studies: Biospecimens and Bioinformatics.

Evaluation of Program

Main Goals of the Program:

1) Provide students with substantive methodological and quantitative preparation in the academic disciplines of biostatistics and epidemiology.

2) Provide advanced, research-oriented training in both theory and methodology in these disciplines.

3) Develop researchers who will be skilled in solving problems on the interface between biostatistics and epidemiology as they relate to designing and conducting studies as well as analyzing, and interpreting the results from increasing variety of designs and databases in the public health and medical research.

List of Goals assessed at each of the program's milestones:

Comprehensive exam: Goal 1

Qualifying Oral Exam: Goal 1 – Goal 2

Dissertation Research: Goal 3

III. Resources

The Departments of Epidemiology and Biostatistics at the University of Kentucky have sufficient resources to initiate and maintain the proposed Ph.D. program in Epidemiology and Biostatistics. Having recruited two new core faculty in 2006 (Drs. Browning and Chattopadhyay), the Department of Epidemiology now has six core faculty (the others are Drs. Caldwell, Fleming, Hopenhayn, and Tucker) and five adjunct faculty (Drs. Baron, Mannino, Coker, Steinke, McKnight, who will be active in the proposed Ph.D. program. In an ordinary academic year, the core and adjunct faculty in

the Department of Epidemiology can cover a maximum of approximately 18 courses. With the proposed Ph.D. program, the net increase in the number of courses for which the Department of Epidemiology will be responsible in an ordinary academic year is approximately 3, so that the total number of courses for which the Department of Epidemiology will be responsible in an ordinary academic year is approximately 15. Three of the six core faculty in the Department of Epidemiology are currently tenured, ensuring that dissertation advisory needs will be met on the Epidemiology side. As for the Department of Biostatistics, one new core faculty member was recruited in 2006 (Dr. Bush), one was recruited in 2007 (Dr. Wang), and one was recruited in 2008 (Dr. Fardo). The Department of Biostatistics thus has seven core faculty (the others are Drs. Branscum, Charnigo, Kryscio, and Mendiondo) and two adjunct faculty members (Drs. Shelton and Rayens) who will be active in the proposed Ph.D. program. In an ordinary academic year, the core and adjunct faculty in the Department of Biostatistics can cover a maximum of approximately 18 courses. With the proposed Ph.D. program, the net increase in the number of courses for which the Department of Biostatistics will be responsible in an ordinary academic year is approximately 7, so that the total number of courses for which the Department of Biostatistics will be responsible in an ordinary academic year is approximately 18. One of the seven core faculty in the Department of Biostatistics is currently tenured, but three of the others will be considered for (and hopefully granted) tenure by the time the students in the first cohort of the proposed Ph.D. program are ready to select dissertation advisors. Hence, dissertation advisory needs will be met on the Biostatistics side.

IV: Academic Program Approval Checklist

01: Are more Kentuckians ready for postsecondary education?

A. Entrance requirements: Bachelor's Degree, Introductory statistics (STA 580 or equivalent), an undergraduate course in Life Sciences, two semesters of calculus.
B. Transfer requirements: N/A
C. Recruitment Plans: The four target audiences for this program are (i) graduates from a master's in public health with concentrations in epidemiology or biostatistics, (ii) graduates from a master's degree program in epidemiology, biostatistics, the mathematical sciences, or applied statistics, (iii) master's level graduates from psychology, computer science, engineering, business, biology, or chemistry and (iv) people who have completed undergraduate degrees in the fields listed in (ii) and (iii). We will work with all regional universities in the state and surrounding states to ensure a smooth transition from M.S. level graduate programs or relevant undergraduate programs to our doctoral program. We will create flyers to post at these institutions as well as volunteer to visit these institutions to present seminars to highlight the research programs of the faculty in the program. We also plan to work with the AMSTEM program on campus to attract students from disadvantaged backgrounds into our program.

02: Are more students enrolling?

A. Program demand: This program is necessitated by national trends requiring qualified individuals to teach and provide consultative services in advanced epidemiology and biostatistics, especially as they apply to medical sciences and public health. The demand for such expertise is especially critical for the Commonwealth of Kentucky, which consistently ranks low in national standings for many adverse health events. In addition, graduates of this program will be able to conduct independent biomedical research in their specialization area. In the last twenty years, the demand for biostatisticians and epidemiologists has grown dramatically, as opportunities to participate in the design, conduct, and analysis of biomedical and public health research projects have continued to expand. A 2006 survey compiled by the Association of Schools of Public Health documented that 6.7% (1,892) of the students enrolled in the 38 accredited schools of public health were pursuing a degree in Biostatistics, while 19.4% were pursuing a degree in Epidemiology (5,478) (http://www.asph.org/UserFiles/Data%20Report.2006.pdf) . Over 40% of these students were pursuing a PhD degree. Currently, no dual Biostatistics/ Epidemiology PhD programs exist in the Commonwealth and therefore we expect a strong demand for this program from among a broad array of in-state and national and international students who are quantitatively trained at the undergraduate level and who are interested in biostatistics and epidemiology.
B. Detailed recruiting plans: see 01.C above
C. Equity: In accordance with University of Kentucky policy, this program will provide opportunities to people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, marital status, age, veteran status, or physical or mental disability (University of Kentucky, Office of Institutional Equity and Equal Opportunity, http://www.uky.edu/EVPFA/EEO/).

03: Are more students advancing through the system?

A. Time to graduation: This program is designed to be completed within 4 years, however it may take some students longer.
B. Reason for offering the program: The demand for epidemiologists and biostatisticians in biomedical research, animal health, pharmacology, genetics, and community-based research is well-documented. "There has long been a shortage of well-trained biostatisticians to collaborate with scientists in academia, industry, and government. The shortage is expected to worsen as senior biostatisticians retire." (Yang, Song; Gangon, Ronald E; Sullivan, Lisa M; Weems, Kimberly S, Summer Institutes for Training in Biostatistics (SIBS): Addressing the Biostatistician Shortage. JSM 2007 Proceedings.)
This program offers a unique compilation of courses that incorporate epidemiological and biostatistical theory and application. Graduates will be prepared to actively participate in scientific research teams, assist in the writing and review of proposals, protocols, and manuscripts, design community-based and clinical trials, as well as develop methods for applied problems in

epidemiology and bisotatistics. Hence, by offering the program, the University of Kentucky will help to fill the ever-increasing need for epidemiologists and biostatisticians demanded by academia, industry, and government.

C. Delivery. Some elective courses may be delivered through distance learning.
D. Collaborative Efforts. The departments of Epidemiology and Biostatistics are collaborating together with the College of Public Health to develop this program. In addition, the Department of Biostatistics is collaborating with the Department of Statistics to cross-list BST 762/STA 607, STA 653/ BST 763, and (STA 665/CPH 637).

04. Are we preparing Kentuckians for life and work?

A. Graduates from this program will be able to fill positions in academia, government, and industry at high levels of professional influence. The starting salaries for doctoral prepared biostatisticians currently range from about $87,000 in academic positions to $140,000 in industry settings. This range is very similar for epidemiologists. Graduates who have a strong skill set in research methods, study design, and advanced statistical analysis, with a substantive focus in areas of environmental, genetic, social, injury, or infectious disease disciplines, will be well suited for higher level research opportunities. Graduates of this program should command beginning salaries in this range. This program is congruent with efforts to advance the University of Kentucky to a top 20 research institution.
B. Accreditation expectations: This combined PhD program in epidemiology and biostatistics will be subject to the accreditation requirements of the College of Public Health and the Graduate School at the University of Kentucky. The program will be reviewed for productivity, resource utilization, placement of the graduates, and comparability with (related) peer programs in the nation.
C. This program will be accountable to the accreditation requirements of PhD programs in the Graduate School at the University of Kentucky.
D. Expected degree productivity: It is expected that 3-5 students will initially be admitted to the program in its first year of initiation. These students are expected to complete the program of study in 4 years. After the initial 1-2 years of experience with the program, it is anticipated that, with recruitment, demand, and increasing resources in these two Departments (i.e. faculty lines), the program will admit approximately 10 students per year.

05. Are Kentucky's communities and economy benefiting?

A. External Advisory Groups: The College of Public Health at the University of Kentucky has an external advisory group representing public health leaders throughout the state. The Advisory Committee and other external health care groups have consistently recognized the lack of individuals in Kentucky who are trained in both Epidemiology and Biostatistics. The proposed PhD program in both Epidemiology and Biostatistics directly addresses this need.
B. Employment expectations: The demand for individuals with training in Epidemiology and Biostatistics at the doctoral level is intense. There is a

shortage of individuals with this specific training nationally and this shortage is particularly acute in Kentucky. Anyone completing the proposed degree will be highly sought after for their unique and important knowledge and skills.

C. Other benefits. One of the most significant problems facing Kentucky communities is unhealthy populations. These problems have been well documented. People living in Kentucky have higher rates of cancer (specifically lung cancer, colon cancer, and cancer of the uterine cervix). The Kentucky population has higher rates of obesity, heart disease, and diabetes. These health problems have devastating impact on the workforce and economy of Kentucky communities. The graduates from this program will have unique skills that will help them measure the effectiveness of no health intervention programs, including educations, screening, and treatment.
   Until individuals with the specific education outlined in this proposal are available, Kentucky communities will continue to suffer from health problems that can be prevented or controlled through more effective education, screening and treatment programs.
D. Specific benefits. See above.

From: Graduate.Council.Web.Site@www.uky.edu
Sent: Thursday, November 13, 2008 9:19 AM
To: Nikou, Roshan
Cc: Price, Cleo
Subject: Investigator Report

AnyForm User: www.uky.edu
AnyForm Document: http://www.research.uky.edu/gs/GCInvestigatorReport.html
AnyForm Server: www.uky.edu (/www/htdocs/AnyFormTurbo/AnyForm.php)
Client Address: 172.21.72.67

College/Department/Unit: = MS in Epidemiology
Category:_ = New
Date_for_Council_Review: = November 13, 2008
Recommendation_is:_ = Approve
Investigator: = Brett Spear
E-mail_Address = bspear@uky.edu
1__Modifications: = None
2__Considerations: = This program is being developed in parallel with the new PhD program in Epidemiology and Biostatistics. Students who complete the core coursework (33 credit hours of core courses, 6 credit hours of electives) will be eligible for this degree. Students will also be required to carry out a master\'s thesis and pass an oral exam that will be administered by the student\'s committee.
3__Contacts: = Discussed issues related to this and the accompanying PhD program with Dr. Kryscio.
4__Additional_Information: = There does not appear to be a plan A and plan B masters. It appears that students are required to have a research component for the MS degree, although it states in the application that students who take the courses for the PhD program but choose not to pursue their dissertation research could obtain this MS degree. One question is whether there would be a research component for those who choose this path.

Overall, approval of this new program is recommended.

--
AnyForm/PHP3 0.1

AnyFormRandomSeqNo: 66075113

UNIVERSITY OF KENTUCKY

Dream · Challenge · Succeed

COLLEGE OF PUBLIC HEALTH

MEMORANDUM

TO: **Health Care Colleges Council**

FROM: **Linda A. Alexander, EdD**
Associate Dean for Academic Affairs

SUBJECT: **New Program Proposal – Master of Science in Epidemiology**

DATE: **August 28, 2008**

It is the intention of the College of Public Health to begin offering a new degree program – a Master of Science in Epidemiology.

In November 2006, our college applied to the Kentucky Council for Post-Secondary Education for permission to develop a proposal for the PhD in Epidemiology and Biostatistics. The CPE sent Provost Subbaswamy notification that the CPE granted permission for us to develop the program in December.

It was suggested to us that the MS in Epidemiology be developed as a companion program to the PhD in Epidemiology and Biostatistics to allow students an option in circumstances where the decision to discontinue the PhD program is made. Practicing MDs, DMD, PharmDs, and other health professionals who are interested in conducting population-based research and will be the targeted audience for the degree; Master's-level graduates in the areas of psychology, computer science, engineering, business, biology, or chemistry may also find the program an attractive addition to their formal academic training.

After the full proposal was completed, it was reviewed and approved by the Academic Affairs Committee and the Faculty Council, according to our college's established bylaws.

Further information about this course can be obtained by contacting Dr. Thomas Tucker at 219-0773 ext 225 or via email at tct@kcr.uky.edu.

Office of the Dean
121 Washington Ave., Suite 112 · Lexington Kentucky 40536-0003
(859) 218-2247 · *fax* (859) 323-5698
www.mc.uky.edu/PublicHealth
An Equal Opportunity University

UNIVERSITY SENATE REVIEW AND CONSULTATION SUMMARY SHEET

Proposal Title: **Master of Science in Epidemiology**

Proposal Contact: Dr. Thomas Tucker, Department of Epidemiology
College of Public Health
121 Washington Avenue, Room 200
CAMPUS 0003
Phone: 219-0773 ext 225
Email: tct@kcr.uky.edu

Becki Flanagan, Academic Affairs
218-2092 **becki@uky.edu**

Instruction: To facilitate the processing of this proposal please identify the groups or individuals reviewing the proposal, identify a contact person for each entry, provide the consequences of the review (specifically, approval, rejection, no decision and vote outcome, if any) and please attach a copy of any report or memorandum developed with comments on this proposal.

Reviewed By	Contact person	Consequences of Review	Date of Proposal Review	Review Summary Attached?
Academic Affairs Committee	Marta Mendiondo, Chair	Approved	6/17/08	Yes
Faculty Council	Glyn Caldwell, Chair	Approved	7/17/08/08	Yes
Office of Academic Affairs	Linda Alexander, Associate Dean	Approved	8/28/08	Yes
HCCC	Heidi Anderson	Approved	9/16/08	—

REQUEST FOR A NEW PROGRAM

Degree title: Master of Science (MS) in Epidemiology

Major title: Epidemiology Option: N/A Major code in SIS:

Primary College: College of Public Health

CIP Code: 26.1309 Epidemiology

Accrediting Agency: N/A

Contacts:

Thomas C. Tucker tct@kcr.uky.edu 219-0773 x225

I. Abstract

The proposed Master of Science (MS) program in epidemiology is intended to prepare professionals for mid-level careers in conducting population-based research and clinical trials. The MS program in epidemiology in the College of Public Health is a unique program which strongly emphasizes the acquisition of applied skills in the complementary fields of epidemiology and biostatistics, as well as the theoretical foundations of these disciplines. Graduates of this program will be prepared to work as epidemiologists in academia, government, and industry. In contrast to other masters programs in epidemiology, this program will leverage the unique collaborative environment between the departments of Biostatistics and Epidemiology in the College of Public Health. The essentially strong cross-training and mentoring nature of the program is intended to develop researchers who will be skilled in designing and conducting epidemiologic studies, analyzing data, and interpreting the results from a variety of designs and databases in the public health and medical research domains.

This is intended to be an integrative masters program with a strong emphasis on quantitative and methodologic skills development. This two year program follows the identical course work requirements of the PhD program in epidemiology and biostatistics. Consequently, this degree program can provide a terminal master's degree in epidemiology for those students who have successfully completed the course work for the PhD program but who choose not to pursue a dissertation, fail in the completion of the oral and/or written examinations at a level required for doctoral work, or for personal reasons decide not to continue the program. The MS program will be strong preparation for doctoral studies in epidemiology, biostatistics, or other public health disciplines (health behavior, health services management, environmental health). Students will be required to undertake a master's thesis, following the completion of required course work and examinations, and defend the thesis in an oral examination.

AUDIENCE

The program will prepare students for research oriented careers in population based studies and clinical research studies including clinical trials. The target audience for this program will include students with an appropriate prior bachelor's or masters degree along with prior mathematical training to include univariate differential and integral calculus. In addition, practicing health care professionals (MDs, DMDs, PharmDs, etc) who are interested in pursuing independent research careers will be targeted for the program. There is a severe shortage of masters and doctoral level graduates with training in epidemiology and biostatistics. This program is unique since it requires students to show proficiency in both areas.

NEED

There is an increasing need for research-oriented health professionals who will be qualified to conduct population-based research and clinical trials in the next several decades. Epidemiologists with strong quantitative skills will be in demand as the need for researchers with an understanding of the new developments in the biostatistics, data management, and clinical trials research will increase. Scientifically trained (subject matter) data analysts who can address the issues in conducting studies which include large amounts of complex data from longitudinal studies, multi-center trials, registries, and genomics databases will be needed at the mid career and doctoral level. The neurosciences, genetics, molecular biology, surveillance, and computational biology are expected to be growth areas which will demand the complex, integrated skill set of a new group of professionals.

The students in this program will be required to have a minimum residence requirement of 2 full semesters of graduate level coursework. All requirements must be completed within 8 years of undertaking the program. All students will be required to pass a written examination at the master's level before proceeding with the master's thesis. The thesis research will need to be an original scientific project using either primary or secondary data with a population-based (epidemiologic) or clinical trials focus. The thesis must be developed under the direction of a full or an associate member of the Graduate Faculty. It must be approved by the thesis director, the Director of Graduate Studies, the Examination Committee and the Graduate School, and must be in conformity with instructions prepared by the Graduate School entitled, Instructions for the Preparation of Theses and Dissertations. (Copies of this document are available from the Graduate School.)The scope of the thesis shall demonstrate independence, mastery of research skills, and thoughtful reflection of the results in accordance with guidelines given in the CPH student handbook and the rules of the graduate school.

The completion of the thesis will require the formation of a master's thesis committee. No fewer than 3 persons shall constitute the thesis committee. One of the members

must be a full member of the graduate school and at least 2 of the 3 members must be faculty from the Departments of Epidemiology in the College of Public Health.

II. Program Description

Competencies

The following competencies for the MS in Epidemiology are based on the core courses for the degree:

1. Understand the interface between biostatistics and epidemiology
2. Demonstrate advanced proficiency to apply concepts and methods from these disciplines jointly.
3. Demonstrate the ability to review and critically evaluate the literature in a substantive area of research, be able to identify gaps in knowledge and be able to formulate original research hypotheses or statements
4. Evaluate the strengths and limitations of epidemiologic reports and research articles.
5. Draw appropriate inferences from research data.
6. Communicate research results orally and in writing to lay and professional audiences.
7. Demonstrate an understanding of concepts of probability and statistical inference as they apply to problems in public health.
8. Demonstrate proficiency in using computing tools commonly encountered in epidemiology and biostatistics.
9. Understand the principles of various epidemiologic study designs and be able to calculate the appropriate epidemiologic measures for most typical designs.
10. Become proficient at and be able to evaluate the strengths and limitations of advanced designs and statistical analysis methods including multivariate linear models, generalized linear models, longitudinal models, mixed effects models, and survival models both parametric and nonparametric.
11. Understand the principles of chronic and infectious disease epidemiology.
12. Demonstrate an understanding of research methods used in epidemiology and biostatistics.
13. Demonstrate knowledge of the public health system in the commonwealth and the country.

Curriculum

Students will complete a minimum of 39 credit hours of study (see attached outline in Appendix 1). The core curriculum consists of 11 core courses comprising 33 credit hours. In addition to the core courses, students in the MS program will be required to complete two additional elective courses totally six credit hours.

A comprehensive examination is given between the fall and spring semesters of the second year. Students for the MS must pass this examination at a pass level commensurate for the masters program. There will be two opportunities to take this exam. Students are also required to complete a master's thesis and defend it in an oral examination of their faculty committee.

Pre-requisites
Bachelor's Degree
Calculus: Univariate Differential and Integral Calculus
One course in Life Sciences
STA 580: Biostatistics 1

Core curriculum (33 hours)

BST 675 Biometrics I (4) This course, the first of a two-semester sequence in biometrics, introduces probability, discrete random variables, continuous random variables, joint distributions, and sampling distributions.

BST 676 Biometrics II (4) This course, the second of a two-semester sequence in biometrics, introduces techniques for constructing and evaluating point estimators, hypothesis testing procedures, and interval estimators.

CPH 605 Epidemiology (3) In this course students are taught the principles and methods of epidemiologic investigations, research methodology, and statistical integration. Major topics include etiologic factors of disease and injury, the distribution of health problems within populations, levels of prevention, and the concept of risk. The design of retrospective, cross-sectional and prospective studies are examined to illustrate odds ratio, relative risk, life tables, and person-years. Students are required to complete and submit a research proposal, present a topic paper, and serve as a co-facilitator for an article discussion.

CPH 712 Advanced Epidemiology (3) This course provides students with the understanding of advanced issues in the design, analysis, and interpretation of epidemiologic studies. The course text and associated readings will focus on study designs and the methodologic approaches to addressing bias, confounding, and error in the design of population-based health research. The development of a systematic approach for evaluating evidence from epidemiologic studies as it relates to demonstrating causality will be emphasized. Focusing on study design, measures of associations, confounding, interaction, sources of bias and error, the student will gain an understanding of epidemiology and its role in the medical and public health sciences.

BST 639 Computing Tools (3) Introduction to statistical and epidemiologic software technologies commonly used for the collection, management, and analysis of data. This is a core course for the PhD in Epidemiology and Biostatistics. It is designed to prepare first year students for further coursework and dissertation research.

BST 760 Advanced Regression (3) This course provides an introduction to theoretical methods and applications of linear and generalized linear models. Regression methods for normally distributed outcomes will provide a discussion of experimental design, design matrices, and modes of parametric inference for the linear model. Students will learn to apply these concepts in sophisticated data analysis where they will implement tools for model building and selection, variable selection, and handling categorical predictors, confounders and interactions. Additionally, students will learn polynomial regression and flexible alternatives such as weighted least squares and robust, ridge and nonparametric regression. Regression methods for non-normal outcomes (focusing on binomial and count data) will be covered in detail, providing students with foundational tools for understanding and implementing generalized linear models that are commonly used to analyze epidemiologic and public health data from various study designs including but not limited to cohort, case-control, and clinical trials.

BST 761 Time to Event Analysis (3) Survival distributions, Hazard functions, Origin of time, and types of censoring, Time to event analysis using Kaplan-Meier method, Life-table method, Accelerated failure time model, Logit model for discrete data, Complimentary log-log model, Maximum likelihood estimation, Tests for goodness-of-fit, Graphical methods, and residual and influence statistics., Proportional Hazards model, Partial likelihood, Time-dependent covariates, Cox model with non-proportional hazards, Left truncation and late entry into the risk set, Competing risks, Sample size and power, Time to event analysis with missing data.

BST 762 / STA 632 Longitudinal Data Analysis (3) This course presents statistical techniques for analyzing longitudinal studies and repeated measures experiments that occur frequently in public health, clinical trials, and outcomes research. This course will cover linear mixed models, generalized linear mixed models and an introduction to nonlinear models as they apply to the analysis of correlated data.

EPI 714 Epidemiologic Study Design (3) This course provides students with advanced course material relevant to the planning and execution of epidemiologic studies of various designs. The course will consider study

designs which employ routinely collected data on disease occurrence, such as would be undertaken in government agencies and health departments, and the classic etiologic study designs including the case-control, prospective cohort, retrospective cohort, nested case control, case-cohort, and case-crossover designs. The course will focus considerable attention on measurement methods and measurement error, borrowing examples from the subfields of epidemiology including occupational, cardiovascular, and social epidemiology. Given current interest on multilevel methods of analysis, the class will discuss approaches to the incorporation of designing multilevel studies. Finally, we will consider recent advances in experimental epidemiology with consideration of controlled community trials.

BST 716 Infectious Disease Epidemiology (3) Emphasizes the epidemiological and microbiological methods used to study infectious diseases including new, emerging, and re-emerging diseases. Included are the history, epidemiologic concepts and tools needed to understand and investigate the maintenance, transmission, and effects of infectious disease in human populations.

CPH 701 Current Issues in Public Health (1) This seminar course will introduce MS and PhD students to the critical role of public health in protecting, maintaining, and improving the health of the population. Specific emphasis will be directed to the "Ten Essential Functions of Public Health" through weekly lectures, readings, and writing assignments. All five core areas of public health will be introduced

A Chronic Disease Epidemiology Course chosen from the ones below:

CPH 711 Chronic Disease Epidemiology (3) Provides students with an overview of the risk factors associated with the most common chronic diseases, data sources available about these diseases and epidemiologic theories, concepts and tools associated with these diseases.

CPH 616 Cardiovascular Epidemiology (3) Provides students with an overview of the risk factors associated with cardiovascular disease. Also teaches students about variations in the frequency of risk factors and in the rates of cardiovascular disease by characteristics of person, time and place.

CPH 718 Special Topics: Cancer Epidemiology (3)This course applies and integrates the principles and tools of epidemiology to the study of cancer. The course includes discussion of the burden of various kinds of cancer across the United States and the world by age, gender, and race/ethnicity, the underlying biology behind the development of cancer in humans, cancer surveillance, the epidemiology of various kinds of cancer by

category of major risk factors such as human behavior (e.g. smoking and alcohol use).

Electives (Two required)

Electives may be chosen by the student in consultation with the advisor and dependent on need.

List of Electives

BST 764 Applied Statistical Modeling for Medicine and Public Health (3) This course introduces some useful statistical models not typically encountered in the core courses of a master's or doctoral biostatistics curriculum. These include finite mixture models, nonparametric regression models, covariance-based models, and stochastic models.

BST 765 Missing Data Methodology for Public Health (3) This course surveys methods for analyzing data with missing observations. This includes methods for data missing completely at random including hot deck cold deck, mean substitution, and single imputation; methods for data missing at random including multiple imputation and weighted estimating equations and methods for data missing not at random including pattern mixture models, selection models, and shared random effects models.

BST 767 Analysis of Temporal Data in Public Health (3) This course surveys methods for analyzing public health data collected over time. Methods covered include smoothing time series data, the modeling of stationary time series for Gaussian, dichotomous, and case count responses, methods for detecting the clustering of disease over time, and methods for the surveillance of infectious diseases in real time.

BST 701 Bayesian Modeling in Biostatistics (3) This course provides an introduction to Bayesian ideas and data analysis applied to the biosciences. The course illustrates current approaches to Bayesian modeling and computation in biostatistics.

CPH 610 Injury Epidemiology (3) Describes the distribution and determinants for traumatic injury and poisonings, including both intentional and unintentional events. Topics include: sources of data, methodological approaches to studying injuries, evaluation of injury interventions, and the link between epidemiology and public health policy impacting injuries.

CPH 614 Managerial Epidemiology (3) Reviews the fundamental principles of epidemiology and teaches students how to apply these principles to the management of health service organizations.

CPH 616 Cardiovascular Epidemiology (3) Provides students with an overview of the risk factors associated with cardiovascular disease. Also teaches students about variations in the frequency of risk factors and in the rates of cardiovascular disease by characteristics of person, time and place.

CPH 617 Environmental and Occupational Epidemiology (3) Provides students with an understanding of occupational and environmental exposures and their associations with specific health effects, and with the application of epidemiologic concepts and methods to describe and analyze these associations. Combines lectures on exposure assessment, study design and methodological issues, as well as discussion and presentation of topics focused on specific outcomes and exposures.

CPH 662 Public Health Response to Terrorism & Disasters (3) Focuses on public health concepts, history, methods, planning and response preparedness in response to a Weapons of Mass Destruction (WMD) terrorist attack, in both the nation and Commonwealth of Kentucky. Will discuss how public health methods can be applied to response planning and preparedness for such a bioterroristic WMD attack and improve the public health and medical infrastructure for response to natural disasters. Public health response includes surveillance of disease and laboratory reports for evidence of WMD attack, as well as epidemiological review of suspicious cases of illness potentially related to biological or chemical weapons.

CPH 718 Special Topics: Decision-Making in Health and Medicine (3) This course applies decision science theory to healthcare decision making. It is intended for epidemiologists, managers, and health behaviorists who want to understand the process of rational decision-making. Topics include (1) managing uncertainty, (2) treatment decisions, (3) valuing healthcare outcomes, (4) diagnostic test decisions, (5) prevention and screening, (6) tests with multiple outcomes, (7) cost-effectiveness, cost-benefit, and cost-utility analysis, and (8) modeling events that reoccur over time.

CPH 718 Special Topics: Oral Health Epidemiology (3) This course describes the concepts and principles of oral health epidemiology. The purpose is to use epidemiology principles and concepts and apply them to oral health related questions. This is an advanced, 700 level course, and will be intense. Although basic and intermediate/ advanced principles of epidemiology, biostatistics and oral biology will be reviewed early in the course, students are expected to have good working knowledge of these subject areas. Students are not expected to have a background in dentistry, but their biology, math and critical thinking abilities are expected to be worthy of the level of this course. The course includes discussions of the theory and methods of epidemiology, biostatistics and biology, sociology and philosophy and their applications to oral health.

CPH 718 Special Topics: Cancer Epidemiology (3) This course applies and integrates the principles and tools of epidemiology to the study of cancer. The course includes discussion of the burden of various kinds of cancer across the United States and the world by age, gender, and race/ethnicity, the underlying biology behind the development of cancer in humans, cancer surveillance, the epidemiology of various kinds of cancer by category of major risk factors such as human behavior (e.g. smoking and alcohol use), endogenous/exogenous hormones, viruses, environmental/ occupational, and diet, and sources of data and methods for evaluating cancer screening, measuring the impact of risk factors, determining the incidence of cancer and cancer clusters, measuring patterns of care, and understanding the determinants of survival.

CPH 718 Special Topics: Cancer Molecular Epidemiology (3) This course will consist of lectures relating to the principles of molecular epidemiology, cancer prevention, and control. Lectures include: Biomarker Discovery using proteomic techniques, Cancer Screening, Genomics and Pharmacogenomics, Cancer susceptibility: Single Nucleotide Polymorphisms and DNA Damage and DNA Mismatch Repair Genes, Cancer Risk Assessment, Cancer Diagnosis and Prognosis, Cancer Theragenosis, and Transitional Studies: Biospecimens and Bioinformatics.

Residency Course
CPH 748 Residency Course (0 credit hour)

Evaluation of Program

III. Resources

The Departments of Epidemiology and Biostatistics at the University of Kentucky have sufficient resources to initiate and maintain the proposed MS program in Epidemiology. Having recruited two new core faculty in 2006 (Drs. Browning and Chattopadhyay), the Department of Epidemiology now has six core faculty (the others are Drs. Caldwell, Fleming, Hopenhayn, and Tucker) who will be active in the proposed program. In an ordinary academic year, the six core faculty in the Department of Epidemiology can cover a maximum of approximately 18 courses. The net increase in the number of courses for which the Department of Epidemiology will be responsible in an ordinary academic year is approximately 3, so that the total number of courses for which the Department of Epidemiology will be responsible in an ordinary academic year is approximately 15. Three of the six core faculty in the Department of Epidemiology are currently tenured, ensuring that student advisory needs will be met.

IV: Academic Program Approval Checklist

Note: this is a graduate program meaning most of the questions raised in this part of the application are not applicable (N/A).

01: Are more Kentuckians ready for postsecondary education?

A. Entrance requirements: Bachelor's Degree, Introductory statistics (STA 580 or equivalent), an undergraduate course in Life Sciences, two semesters of calculus.
B. Transfer requirements: N/A
C. Recruitment Plans: The target audiences for this program are primarily (i) undergraduates with a bachelors degree in mathematics, statistics, or the life sciences (ii) graduate students who intend to complete this program in route to PhD in Epidemiology and Biostatistics, (iii) master's level graduates from psychology, computer science, engineering, business, biology, or chemistry and (iv) professional degree students seeking a MS degree in Epidemiology. We will work with all regional universities in the state and surrounding states to ensure a smooth transition from relevant undergraduate programs to our MS program.

02: Are more students enrolling?

A. Program demand: The demand for expertise in epidemiology/biostatistics at the master's level is especially critical for the Commonwealth of Kentucky, which consistently ranks low in national standings for many adverse health events. In the last twenty years, the demand for epidemiologists has grown dramatically, as opportunities to participate in the design, conduct, and analysis of biomedical and public health research projects have continued to expand. Currently, there is not an MS program in epidemiology in the Commonwealth and therefore we expect a strong demand for this program from among a broad array of in-state and national and international students who are quantitatively trained at the undergraduate level and who are interested in an epidemiology with an emphasis on applied analytic skills development.
B. Detailed recruiting plans: See 0.1.c above
C. Equity: In accordance with University of Kentucky policy, this program will provide opportunities to people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, marital status, age, veteran status, or physical or mental disability (University of Kentucky, Office of Institutional Equity and Equal Opportunity, http://www.uky.edu/EVPFA/EEO/).

03: Are more students advancing through the system?

A. Time to graduation: 2 years
B. Reason for offering the program: Program is being offered to fill demand for MS students in Epidemiology and to provide a terminal master's degree for student in

the PhD program in Epidemiology and Biostatistics who complete course and written exam requirements but who do not fulfill the dissertation research requirement.

C. Delivery. Some elective courses may be delivered through distance learning.
D. Collaborative Efforts. The departments of Epidemiology and Biostatistics are collaborating together with the College of Public Health to develop this program.

04. Are we preparing Kentuckians for life and work?

A. How does the program prepare Kentuckians for life and work? Graduates from this program will be able to fill positions in academia, government, and industry at high levels of professional influence. Graduates who have a strong skill set in research methods, study design, and advanced statistical analysis, with a substantive focus in areas of environmental, genetic, social, injury, or infectious disease disciplines, will be well suited for higher level research opportunities. This program is congruent with efforts to advance the University of Kentucky to a top 20 research institution.
B. Accreditation expectations: This MS program in epidemiology will be subject to the accreditation requirements of the College of Public Health and the Graduate School at the University of Kentucky. The program will be reviewed for productivity, resource utilization, placement of the graduates, and comparability with (related) peer program in the nation.
C. Are there licensure, certification, or accreditation requirements for graduates of this program? This program will be accountable to the accreditation requirements of MS programs in the Graduate School at the University of Kentucky.
D. Expected degree productivity: It is expected that 3-5 students will initially be admitted to the program in its first year of initiation as part of the PhD program in Epidemiology and Biostatistics. These students are expected to complete the program of study in 2 years. After the initial 1-2 years of experience with the program, the faculty will have a better idea of the programs success. It is anticipated that students will independently be admitted to the MS program in Epidemiology following this initial recruitment into the PhD program.

05. Are Kentucky's communities and economy benefiting?

A. External Advisory Groups: The College of Public Health at the University of Kentucky has an external advisory group representing public health leaders throughout the state. The Advisory Committee and other external health care groups have consistently recognized the lack of individuals in Kentucky who are trained in both Epidemiology and Biostatistics.
B. Employment expectations: The demand for individuals with training in Epidemiology and Biostatistics at the graduate level is intense. There is a shortage of individuals with this specific training nationally and this shortage is particularly acute in Kentucky. Anyone completing the proposed degree will be highly sought after for their unique and important knowledge and skills.

C. Other benefits. One of the most significant problems facing Kentucky communities is unhealthy populations. These problems have been well documented. People living in Kentucky have higher rates of cancer (specifically lung cancer, colon cancer, and cancer of the uterine cervix). The Kentucky population has higher rates of obesity, heart disease, and diabetes. These health problems have devastating impact on the workforce and economy of Kentucky communities. The graduates from this program will have unique skills that will help them measure the effectiveness of no health intervention programs, including educations, screening, and treatment.
   Until individuals with the specific education outlined in this proposal are available, Kentucky communities will continue to suffer from health problems that can be prevented or controlled through more effective education, screening and treatment programs.
D. Specific benefits. See above.

MS in Epidemiology

Prerequisites:
Bachelor's Degree
Calculus: Univariate Differential and Integral Calculus
One course in Life Sciences
STA 580: Biostatistics 1 or equivalent

Fall	Spring
Year 1	
CPH 605 Intro Epidemiology	CPH 712 Adv. Epidemiology
BST 675 Biometrics I (4 credit hours)	BST 676 Biometrics II (4 credit hours)
BST 639 Computing Tools (SAS, R, STATA, Epi Info)	BST 730 Advanced Regression
Year 2	
EPI 714 Epidemiologic Study Design	EPI 711 Chronic Disease Epidemiology (can be fulfilled by CPH 616, CPH 711, or CPH 718)
BST 731 Time to Event Analysis	EPI ___ Elective
EPI 716 Infectious Disease Epidemiology	EPI ___ Elective
CPH 701 Current Issues in Public Health	

Requirements	Credit Hours
11 Core courses	33
Epidemiology electives or other electives (under advisement)	6
Masters thesis	0
Total	39 credit hours

REQUEST FOR A NEW PROGRAM

Degree Title: M.S./Ph.D. in Reproductive Sciences

Major Title: _____Option:_____Major core in SIS: RSC

Primary College: College of Health Sciences

CIP Code (contact registrar's Office if unknown): 26.0905

Accrediting Agency (if applicable) N/A

Departmental Contact: Doris J. Baker, Ph.D. dbake0@uky.edu Phone: 859-323-1100 Ext. 80854

Received
FEB 05 2009
Office of the Provost

Kentucky Council on Postsecondary Education

Steven L. Beshear
Governor

1024 Capital Center Drive, Suite 320
Frankfort, Kentucky 40601
Phone: 502-573-1555
Fax: 502-573-1535
http://www.cpe.ky.gov

Robert L. King
President

January 26, 2009

Kumble Subbaswamy
Provost
University of Kentucky
106 Gillis Building
Lexington, KY 40506-0033

Dear Swamy,

The 45-day review period for the University of Kentucky's proposed doctoral degree in Reproductive Science has ended. CPE staff reviewed UK's January 9th response to our questions that were posted on KPPPS and believe that the response adequately addresses all the issues that were raised. Because UK has automatic EEO status for programs proposed in 2008, it is now free to complete its internal processes for reviewing, approving, and implementing this program.

Please inform us when your governing board has taken final action. At that time, we will need from you:

- the date your governing board approved the program
- the institutional title
- the federal taxonomy title
- the Classification of Instructional Program (CIP) code
- the program curriculum

I wish you success in the implementation of this program.

Sincerely,

Michael Seelig, J.D., M.S.W
Interim Vice President for Academic Affairs

cc: Melissa Bell
Charles McGrew

UNIVERSITY OF KENTUCKY

Dream • Challenge • Succeed

PROVOST BUDGET OFFICE

March 25, 2009

Dr. Dave Randall, Chair
University Senate Council
201 Main Building
CAMPUS 0032

Dear Dr. Randall:

I am writing, on behalf of the Provost, concerning the feasibility of establishing a Master's Degree and Ph.D. program in the College of Health Sciences, Division of Clinical & Reproductive Sciences. I understand the proposal has been approved by the Graduate Council which will forward its recommendation to the Academic Programs Committee of the Faculty Senate.

The Division of Clinical & Reproductive Sciences has been building research capacity for some time. Two of the faculty members in the unit have significant extramural funding and excellent records of publication. A third is nationally known for clinical education in the area of reproduction. In addition, the program collaborates with a significant number of faculty members across several colleges as part of the Reproductive Forum. These individuals have been an informal working group for over 25 years. This group is now proposing to become a Center with this M.S./Ph.D. program as the academic arm of the newly proposed Center. Since 2003, program faculty have obtained approximately 3.9 million in extramural funding, and both faculty and students in the existing program have published their research in top-tier scientific journals. The Ph.D. program will call on teaching and research expertise from members of the Reproduction Forum and these individuals are identified in the proposal.

This proposal for a new free-standing program in the College of Health Sciences follows a thoughtful process of review and consideration. The program will consist of a minimum of 40 didactic credit hours plus seminar and research. Students will complete the first academic year in UK's undifferentiated Integrated Biomedical Sciences (IBS) core. They will complete advanced coursework in the Reproductive Sciences curriculum and rotate in research laboratories directed by program faculty. The Ph.D. program does not have a fixed time for completion, although it is anticipated that a student with a bachelor's degree in science would complete the Ph.D. program in 4 or 5 years.

Students successfully completing the required didactic curriculum in the doctoral

Provost Budget Office
355 Patterson Office Tower • Lexington, Kentucky 40506-0025
(859) 257-6499 • *fax* (859) 257-1797
www.uky.edu
An Equal Opportunity University

program and successfully passing the qualifying examination will be awarded an "en passant" M.S. in Reproductive Sciences. The M.S. gives students the option of leaving in good standing, degree in hand, so that later in life they may be able to continue their graduate education or use the earned degree to assist them in obtaining employment.

Enrollment for the program is projected to be at least 4 students per year. The program has sufficient faculty, recurring and non-recurring sources of funds, and laboratory, office, and teaching space to offer the M.S. and Ph.D. degree programs. The College has committed to funding four students a year for the first two years as the program develops funding mechanisms for their students.

This program has sufficient resources to ensure faculty and student success. I am certifying this program as administratively feasible.

Sincerely,

Karen T. Combs
Vice Provost for Budget and Administrative Services

Cc: Kumble Subbaswamy
Heidi Anderson
Jeannine Blackwell
Connie Ray

I. Submit a 1-2 page abstract narrative of the program proposal summarizing how this program will prepare Kentuckians for life and work, plans for collaboration with other institutions, and participation in the Kentucky Virtual University.

The Division of Clinical and Reproductive Sciences in the College of Health Sciences proposes an **interdisciplinary** program leading to a **Ph.D. in Reproductive Sciences**. The program will be the first Ph.D. in the discipline both at the University of Kentucky and within the Commonwealth. In order to prepare professionals for the field who are qualified to undertake careers that span both research and clinical practice, the program will build upon the already established clinical master's track in Reproductive Laboratory Science (RLS), which has been offered at the University of Kentucky since 2001 and which was the first of its kind in the United States. Educating these professionals will be a response to the need for qualified directors for the more than 450 assisted reproductive technology (ART) laboratories in the U.S (http://www.cdc.gov/ART/ART2004) who, to qualify to practice, must have clinical and reproductive laboratory training in addition to the doctoral degree (http://www.aab.org/hcld.htm). The program also will answer the need for scientists who will be able to significantly contribute to translational research in the field of reproduction. This research will address serious and life-threatening reproductive health concerns including infertility, endometriosis, sexually transmitted infections and reproductive cancers. In addition to careers in clinical practice and translational research, graduates from the program also will be prepared for positions requiring expertise in reproductive science in related fields in higher education, industry, management and regulatory agencies at the federal and state levels.

The Ph.D. program will be interdisciplinary with faculty across campus and beyond contributing to the curriculum. Students will complete the first academic year in UK's undifferentiated Integrated Biomedical Sciences (IBS) core to attain a foundation in cellular and molecular biology and gain an appreciation for interdisciplinary approaches to research. They will then complete advanced coursework in the Reproductive Sciences curriculum and rotate in the research laboratories directed by program faculty. Once the student has selected a specific area of research, s/he will work directly with a scientific advisor to complete and defend dissertation research. In addition to core faculty members from the Division of Clinical and Reproductive Sciences and the Colleges and Medicine and Agriculture, faculty from outside the university will contribute to the Ph.D. program, including clinical faculty from across the United States who already teach in the RLS master's program and investigators from national and international universities already collaborating with the core faculty.

Background

Graduate degrees in the field of reproduction, typically offered in departments of physiology, biomedical sciences, and animal/veterinary sciences, have traditionally prepared graduates for careers in basic research and academics. The birth of the first baby by in vitro fertilization (IVF) followed by embryo transfer (ET) in 1978 and the associated procedures that followed IVF, such as freezing human embryos, created a new discipline within the field of reproduction that is collectively referred to as **assisted reproductive technology or ART.** With the introduction of ART came the need for graduates with added knowledge and skills in clinical reproduction, able to supervise and direct ART laboratories and to contribute to the developing auxiliary fields in the areas of ART laboratory accreditation (College of American Pathologists) and regulation (FDA). The National Institute of Health (NIH) Roadmap for medical research and the directive to catalyze translational research has further strengthened the need for professionals with training and skills applicable to both basic research and clinical application in the field of reproduction.

The first graduate program in the United States that combined clinical education and basic research in ART was the **master's curriculum in Reproductive Laboratory Science (RLS)** at the University of Kentucky. The graduate degree in Clinical Sciences, Reproductive Laboratory Science track available since 2001, was developed as an extension of a post-baccalaureate certificate in Reproductive Laboratory Science established within the Division of Clinical Laboratory Sciences (now Clinical and Reproductive Sciences) in 1998, and which was also the first of its kind in the United States. Students accepted into the master's program must have a bachelor's degree in science or clinical laboratory science and must complete graduate courses in statistics, selected courses in science and introductory courses that review immunology, endocrinology, cell biology and the male and female reproductive systems prior to enrolling in the clinical courses. Clinical courses include lectures and laboratories in embryology, andrology and cryobiology. Laboratory courses are taught in the Charles T. Wethington, Jr. (CTW) Building student laboratories using human spermatozoa and rodent oocytes and embryos. Along with the clinical courses, students complete a lecture/project course that address management of the ART laboratory and addresses ethical, policy and legal issues in ART. Following the completion of all coursework students complete clinical practica in andrology and embryology at clinical sites located throughout the United States.

The curriculum is delivered by core faculty in the program and guest lecturers with expertise in specific areas of RLS, and includes ART and clinical laboratorians, researchers, cryobiologists, ethicists, attorneys and policy analysts. All faculty supervising students in the clinical practica are appointed as clinical faculty by the University of Kentucky. Clinical sites are ART laboratories accredited by the College of American Pathologists' Reproductive Laboratory Accreditation program (CAP-RLAP) and federally-regulated, licensed gamete banks. Refer to Appendix A for a current list of RLS faculty.

A **Graduate Certificate in RLS** was added to the curriculum (2001) to accommodate individuals already holding a graduate degree in science who wished to complete clinical education in RLS. The table below summarizes the curriculum for the RLS track in the M.S. degree and the Graduate Certificate in RLS.

M.S. degree in Clinical Sciences/RLS Track (since 2001)			**RLS Graduate Certificate** (since 2001)		
Course #	**Course Title**	**Cr**	**Course #**	**Course Title**	**Cr**
CSC 600	Pathophysiology	4			
STA 570 or eq.	Statistics	3-4			
Varies- depends on background	Selected Sciences courses: • Cell & Molecular Biology • Genetics • Endocrinology • Microbiology • Other	3-9			
CSC 528	Laboratory Techniques	2*	CSC 528	Laboratory Techniques	2*
CSC 615**	Reproductive Laboratory Science	1	CSC 615**	Reproductive Laboratory Science	1
CSC 616**	Andrology	1	CSC 616**	Andrology	1
CSC 617**	Reproductive Microbiology & Immunology	1	CSC 617**	Reproductive Microbiology & Immunology	1
CSC 618	Labs in Andrology, Reproductive Microbiology and Immunology	1	CSC 618	Labs in Andrology, Reproductive Microbiology and Immunology	1
CSC 621	Embryology & ART	3	CSC 621	Embryology & ART	3
CSC 624	Gamete & Embryo Cryopreservation	2	CSC 624	Gamete & Embryo Cryopreservation	2
CSC 625	Management, Policy, Ethical and Legal Issues in ART	2	CSC 625	Management, Policy, Ethical and Legal Issues in ART	1
CSC 602	Seminar	1			
CSC 630	RLS Research	3-5			
CSC 626	Clinical Practicum in Andrology	2	CSC 626	Clinical Practicum in Andrology	1
CSC 627	Clinical Practicum in ART	3	CSC 627	Clinical Practicum in ART	2
Total hours		Min 30			Min 13-15
Sciences courses for M.S. students vary depending on background and Advisory Committee recommendations. * required for students not having laboratory experience ** distance learning					

As with students completing the post-baccalaureate certificate (offered 1998-2001) in RLS, graduates from the master's and graduate certificate programs (2001-present) are highly competitive and are employed by ART laboratories throughout the United States (Appendix B).

With the education component of the RLS program in place, the next goal was to establish a more solid research focus. The objective to increase research productivity in reproduction coincided with the University's 2003-2006 Strategic Plan Goals: III.1 *Reach National Prominence-Prominence of faculty scholarship and* IV.*2 Discover, Share and Apply New Knowledge-University will provide facilities and equipment necessary to enhance research*. Crucial to the research goal was the need for: 1) faculty to conduct basic research; 2) research space and equipment; 3) a collaborative research environment; and 4) funding to maintain research and graduate education.

1. Faculty to conduct research

In 2004, the Division's laboratory-intensive 24-month curriculum in clinical laboratory sciences (CLS) was modified and replaced with a 10-month curriculum that did not include student laboratory sessions. The abbreviated program therefore altered the undergraduate instructional DOE allowing time for faculty to focus on graduate education and research. Also, the 10-month program required fewer faculty members in the Special Title Series who were dedicated to the unit's undergraduate teaching mission. As a result, when these lines became available due to retirements, Regular Title faculty with DOEs for research were hired into these positions. In 2002-03 two Regular Title Faculty members were appointed. As a result of one of these strategic hires, and with the support of the Women's Health COBRE grant, in 2006 a third faculty member was hired in the Research Title Series to perform scientific research in the area of reproduction. Most recently a new faculty line was approved and a search is currently underway to identify a faculty member in the area of reproduction for a 2008 tenure-track appointment in the tenure-track Regular Title Series. Refer to Appendix C for core faculty CVs. *A notebook with a hard copy of associate faculty CVs available is on request.*

2. Research Space and Equipment

Research space became available for faculty in the unit when the College of Health Sciences moved to the new Charles T. Wethington, Jr., Jr. (CTW) Building in 2002, providing faculty with state-of-the-art research laboratories. Equipment needed for the new CTW research facilities was provided by the Vice-President for shared use. Start-up funds from the VP's office were used for purchasing project-specific equipment. Non-recurring funds in the CHS have been used to support research endeavors, including

equipment purchases. Appendix D lists Research laboratories and major equipment in the CTW Building.

3. Collaborative research/scholarship environment

Absent an assigned unit for reproductive sciences at the University of Kentucky, faculty in the field are housed in departments and colleges across campus, making collaborations somewhat challenging. Fortunately the reproductive researchers have been aligned through the weekly Forum that has existed since 1981. Faculty in the CRS unit collaborate with these researchers and now have a significant representation within the group. Research in CRS continues to be supported by the Women's Health COBRE grant with two of the faculty members serving as co-PIs on the current grant.

4. Funding to Maintain Research and Graduate Education

Program faculty were successful in obtaining extramural funding (~3.9 million since 2003); submissions and awards for 2002-2008 are summarized in Appendix E and both faculty and students published their research in top-tier scientific journals. Appendix F recaps faculty research productivity during the same time period and faculty CVs in Appendix C delineate more specific and temporal data regarding these accomplishments, including student research productivity.

The table below outlines progress in the CRS unit during the past five years (from 2002-2003 through 2007-2008). Refer to Appendix E for funding records for each fiscal year from 2002 to 2008.

Year	Programs	Faculty	DOE for Repro	Research Labs	Funding
2002-2003	BHS in CLS MLT-MT BHS RLS Graduate Certificate M.S./RLS track M.S. and D.Sc. in Heme/Transplant	2 RTS* 4 STS* 2 Prof Staff w/teaching	1 RTS-100% 1 STS – 10% Prof Staff – 50% **Total FTE for repro = 1.6**	1 (located in dept. outside CHS where faculty member held joint appt.)	2001-03 **$21,000**
2007-08	CLS 10-month program RLS Graduate Certificate M.S./RLS track	4 RTS 1 RsTS* 2 STS 2 lecturers	4 RTS-100% 1 RsT – 100% 1 STS – 90% 1 lect – 50% **Total FTE for repro = 6.4**	5-faculty assigned Tissue Bank Embryology Core labs Prep labs	2006-07 **$756,188**
Key: RTS = Regular Title Series; STS=Special Title Series; RsTS=Research Title series					

With a nationally recognized clinical graduate program established in RLS, continued support from the profession, funding for basic research, and ongoing collaborations with university, national and international scientists in the field the CRS faculty were well positioned to contribute to the next levels of need in the field, which included building on the current M.S. program in RLS to offer the required Ph.D. for ART laboratory directors and responding to both the NIH request and numerous clinical needs by establishing a translational research program in ART. At the same time reproductive faculty across campus were becoming more involved with the CRS unit, recognizing that the proposed Ph.D. could be interdisciplinary in nature, filling an important void since there is not a Ph.D. in reproduction at UK or within the Commonwealth of Kentucky. They also recognized this as a potential focus area for translational research. For example, one reproductive faculty member completed the RLS Graduate Certificate to obtain clinical knowledge in the discipline, and on-campus collaborations continued to increase (see Appendices B & C).

In order to move forward with an interdisciplinary Ph.D. in reproductive sciences and establish a collaborative translational research program in the field, it was necessary to identify an environment in which University of Kentucky faculty could interact to meet these goals. To this end faculty members with representation from the Colleges of Medicine, Pharmacy and Agriculture began in late 2006 to plan and discuss logistics. As a result, the recommendation was made to establish a Center of Excellence in Reproductive Sciences to address education, research and service in the area. Appendix G outlines Center membership and research and education projects/goals. Center members agreed that there is a need for a Ph.D. in Reproductive Sciences and all concurred that, since faculty in the field are located throughout the campus, the degree should be interdisciplinary in structure. To this end: 1) CRS faculty met with directors from the IBS curriculum and obtained permission for students in the proposed Ph.D. to complete IBS courses during the first year in the Ph.D. program; 2) faculty in various departments/colleges across campus volunteered to actively serve in the proposed program as associate members, contributing to didactic courses and mentoring students in their laboratories (Appendix A); and 3) two funded faculty members in the field from the Colleges of Agriculture and Medicine requested joint appointments in the CRS Division. These appointments are now in progress.

In addition to steps already taken to establish an interdisciplinary Ph.D. degree in Reproductive Sciences, faculty members across campus have joined the CRS faculty to initiate translational research in reproduction. The CRS embryology laboratory, which was initially designed for instructing RLS students, was recently expanded to provide researchers access to the equipment common in clinical embryology laboratories. The laboratory is equipped with microscopes, cameras, computers and micromanipulation equipment required for performing an Intracytoplasmic Sperm Injections, which are routine procedures in clinical embryology. Additional micromanipulation tools have been added for special injections using mouse research models. In line with collaborative interests on campus, COBRE funds were provided to offset the cost of equipment purchased by the Division of Clinical and Reproductive Sciences and the College of Health Sciences. This combined clinical/research laboratory, which was only updated within the last few months, has already provided the setting for a translational research project addressing the effects of endothelins, a class of peptide hormones, on the rate of in vivo and in vitro fertilization. Results generated within this laboratory have already led to the submission of an R21 exploratory/developmental grant application to the NIH.

On January 29, 2008, the deans of the Colleges of Health Sciences and Medicine, along with representative members from each college and UK's clinical and research administrators met to discuss logistics for the proposed Center of Excellence in Reproductive Sciences. Representatives present unanimously supported the recommendation that the Center be jointly sponsored by the two colleges with the Ph.D. degree being interdisciplinary in nature and awarded by the College of Health Sciences. To support both the Reproductive Center, including development of translational research in reproduction and a Ph.D. in the discipline, reproductive faculty are now writing a Center grant for submission to the NIH in May, 2008. The grant, "Specialized

Cooperative Centers Program in Reproduction and Infertility Research" is a (U54) proposal with two faculty from the Department of Medicine serving as PI and co-PI and two faculty members from the Division of Clinical and Reproductive Sciences serving on the grant, one as a co-PI and the second charged with developing a pilot project within the confines of the grant.

This alignment of qualified and committed faculty, extramural funding, the existing clinical education component and nascent translational research in reproduction, are strongly supportive of this Ph.D. proposal.

The degree program will not be in collaboration with other universities and will not be part of the Kentucky Virtual University.

II. Provide a comprehensive program description [complete curriculum]. Include how program will be evaluated and how student success will be measured.

II. 01 Program Description

The program is designed for students wishing to pursue professional careers in the reproductive sciences. The focus is on basic research leading to new knowledge that will have an impact on the treatment of reproductive diseases with the end result measured in the affected patient population(s). The program is unique in that students preparing for careers in assisted reproductive technology have the option of completing clinical courses and practica in fulfilling requirements for a Graduate Certificate in Reproductive Laboratory Sciences.

The Ph.D. program does not have a fixed time course and time for completion will depend on the progress of individual students. It is anticipated that a student with a bachelor's degree in science would complete the Ph.D. program in four-five years. Students electing to complete the Graduate Certificate in Reproductive Laboratory Sciences should expect to extend their time in the program by two semesters.

II.02 Admission Requirements
The requirements for admission are:
1. A genuine desire to complete graduate work and basic research in reproductive science leading to a professional career in a research and/or clinically based field in reproduction.
2. Bachelor's degree in science that includes the following courses:
    - Biology (2 semesters)
    - Physiology (1 semester)
    - Chemistry (2 semesters)
    - Organic chemistry (2 semesters)
    - Physics (1 semester)
    - Statistics (1 semester)
3. A minimum cumulative undergraduate grade point average (GPA) of 3.0 on a 4.0 scale and a minimum GPA of 3.0 for any graduate work completed.

4. Graduate Record Examination (GRE) with minimum score of 1000 for verbal and math and 3.5 for quantitative.
5. International applicants from non-English speaking areas must complete a TOEFL examination with a score of 550 (paper) or 213 (computerized). Applicants may satisfy the requirement by utilizing the International English Language Testing System (IELTS). A minimum mean band score of 6.5 is required. TOEFL scores range from 40 to 300, with most English-medium universities requiring a TOEFL score of 213 or higher as an entry requirement.
6. Once a student enters the program, a minimum of three years of contiguous enrollment in approved courses beyond the bachelor's degree is required for the Ph.D. (two years prior to the qualifying examination and one year of post-qualifying residency). A maximum of 9 semester hours of this requirement may be transferred for post-baccalaureate work in other accredited graduate degree programs, excluding distance learning courses. By the end of the program the student must demonstrate that he/she can work independently to conduct basic research. Students opting for clinical careers in reproductive science have the option to take reproductive laboratory science (RLS) clinical courses as electives.

II.03 Application Procedures:

All application materials (including transcripts and official scores) must be received by April 1 for fall admission. Applications from international students must be received no later than February 1 for fall admission. (refer to http://www.gradschool.uky.edu/domapp/domapmen.html) for the calendar and additional information. The online application form is available at www.gradschool.uky.edu/gsapplication.html. Forms may be obtained by request at the above web site or by mail at the following address:
The Graduate School
The Gillis Building
University of Kentucky
Lexington, KY 40506-0033

II.04 Curriculum

The program will utilize a variety of graduate courses including courses from the Biomedical Sciences curriculum, current courses in reproductive laboratory science, and newly developed courses in mammalian reproductive physiology, reproductive immunology, and reproductive cancers along with a seminar series. The required program of academic study must include (if not completed with a grade of B or better prior to program entry) a total of 40 didactic credit hours plus seminar and research) the courses listed below.

Course Prefix	Course Title	Credit Hours	College Offered	
IBS 601	Biomolecules and Metabolism	3	COM	UK course
IBS 602	Biomolecules and Molecular Biology	3	COM	UK course
IBS 603	Cell Biology	3	COM	UK course
IBS 604	Cell Signaling	3	COM	UK course
STA 570	Statistics	4	M&S	UK course
CSC 600	Pathophysiology	4	CHS	Currently offered
RSC 700	Mammalian Reproduction	3	CHS	New course
RSC 701	Advanced Reproductive Immunology	3	CHS	New course
RSC 702	Molecular Reproduction	3	CHS	New course
RSC 703	Biology & Therapy of Reproductive Cancers	3	CHS	New course
CSC 673	Flow Cytometry	3	CHS	Currently offered
CSC 604	Research Methods	4	CHS	Currently offered
CSC 602	Seminar	1 (each sem)	CHS	Currently offered
CSC 789	Research Apprenticeship	1-4 (1 for each of 3 sem)	CHS	Currently offered
RSC 790	Research – Prequalifying	1-5	CHS	Similar course currently offered as CSC 690-thesis research
RSC 767	Research – Post qualifying	2 (min)	CHS	Equivalent currently offered as CSC 790 – CS Dissertation Research

*courses offered in other UK departments; **courses currently offered in the Clinical Sciences graduate programs; ***new courses developed in CRS for the M.S./Ph.D. in Reproductive Sciences

Electives are not required, however the scientific advisor and/or committee may request that the student complete additional elective courses. Students wishing to prepare for a clinical career in the field may elect to extend their time in the Ph.D. program by completing the 18 hour curriculum in Reproductive Laboratory Science (RLS) in addition

to all program requirements. It is anticipated that adding the RLS curriculum will extend program completion by two semesters.

RLS Courses

Course Prefix	Course Title	Credit Hours	College Offered
CSC 615	Reproductive Laboratory Science*	1	CHS
CSC 616	Andrology*	1	CHS
CSC 617	Reproductive Microbiology & Immunology*	1	CHS
CSC 528	Laboratory Techniques*	2	CHS
CSC 618	Labs in Andrology, Reproductive Microbiology and Immunology	1	CHS
CSC 621	Embryology & ART	3	CHS
CSC 624	Cryobiology of Reproductive Tissues	2	CHS
CSC 625	Management, Policy, Ethical and Legal Issues in ART	2	CHS
CSC 602	Seminar	1	CHS
CSC 630**	RLS Research	1-5 (min 3)	CHS
CSC 626	Clinical Practicum in Andrology	2-3	CHS
CSC 627	Clinical Practicum in ART	1-3	CHS

All courses currently offered. *offered via distance learning; ** required for students not having acceptable lab experience***Students complete lectures (without grant writing project) in CSC 604 Research Methods for Clinical Sciences followed by clinical research project.

Typical program schedule

Non-RLS		RLS Option	
1st semester – 1st Fall - 12 credit hours		**1st semester – 1st Fall -12 credit hours**	
IBS 601	Biomolecules and Metabolism (3)	IBS 601	Biomolecules and Metabolism (3)
IBS 603	Cell Biology (3)	IBS 603	Cell Biology (3)
STA 570	Statistics (4)	STA 570	Statistics (4)
CSC 789	Research Apprenticeship (1)	CSC 789	Research Apprenticeship (1)
CSC 602	Seminar (1)	CSC 602	Seminar (1)
2nd semester – 1st Spring - 12 credit hours		**2nd semester – 1st Spring – 12 credit hours**	
IBS 602	Biomolecules and Molecular Biology (3)	IBS 602	Biomolecules and Molecular Biology (3)
IBS 603	Cell Biology (3)	IBS 603	Cell Biology (3)
CSC 600	Pathophysiology (4)	CSC 600	Pathophysiology (4)
CSC 789	Research Apprenticeship(1)	CSC 789	Research Apprenticeship (1)
CSC 602	Seminar (1)	CSC 602	Seminar (1)
3rd semester – 1st Summer - 6 credit hours		**3rd semester – 1st summer - 6 credit hours**	
CSC 604	Research Methods (4)	CSC 604	Research Methods (4)
CSC 789	Research Apprenticeship (1)	CSC 789	Research Apprenticeship (1)
CSC 790	Pre-Qualifying Research (2)	CSC 790	Pre-Qualifying Research (2)
4th semester – 2nd Fall 9 credit hours		**4th semester – 2nd Fall -9 credit hours**	
RSC 700	Mammalian Reproduction (3)	RSC 700	Mammalian Reproduction (3)
CSC 701	Adv Repro Immunology(3)	CSC 701	Adv Repro Immunology(3)
CSC 790	Pre-Qualifying Research (3)	CSC 790	Pre-Qualifying Research (3)
CSC 602	Seminar (0)	CSC 602	Seminar (0)
5th semester – 2nd Spring – 9 credit hours		**5th semester – 2nd Spring – 9 credit hours**	
RSC 702	Molecular Reproduction (3)	RSC 702	Molecular Reproduction (3)
RSC 703	Biol & Therapy of Reproductive Cancers (3)	RSC 703	Biol & Therapy of Reproductive Cancers (3)
CSC 790	Pre-Qualifying Research (3)	CSC 790	Pre-Qualifying Research (3)
CSC 602	Seminar (0)	CSC 602	Seminar (0)

6th semester – 2nd Summer – 6-9 credit hours	**6th semester – 2nd Summer - 6-9 credit hours**
CSC 673 Flow Cytometry (3) Science or math per committee (3-4) CSC 790 Pre-Qualifying Research (3) CSC 602 Seminar (0) *Ph.D. qualifying exam**	CSC 673 Flow Cytometry (3) Other science or math per committee (3-4) CSC 790 Pre-Qualifying Research (3) CSC 602 Seminar (0) *Ph.D. qualifying exam**
7th semester – 3rd Fall – 2 credit hours	**7th semester – 3rd Fall - 2 credit hours**
CSC 767 Dissertation Research (2) CSC 602 Seminar (0)	CSC 767 Research (2) CSC 602 Seminar (0)
8th semester – 3rd Spring – 2 credit hours	**8th semester – 3rd Spring – 5 credit hours**
CSC 767 Dissertation Research (2) CSC 602 Seminar (0)	CSC 767 Dissertation Research (2) CSC 602 Seminar (0) CSC 615 Repro Lab Sci (1) web CSC 616 Andrology (1) web CSC 617 Repro Micro & Immno (1) web
9th semester – 3rd Summer -2 credit hours	**9th semester – 3rd Summer – 4 credit hours**
CSC 767 Dissertation Research (2)	CSC 767 Research (2) CSC 528 Laboratory Techniques (2)
10th semester – 4th Fall – 2 credit hours	**10th semester – 4th Fall – 3 credit hours**
CSC 767 Dissertation Research (2) CSC 602 Seminar (0)	CSC 767 Dissertation Research (2) CSC 602 Seminar (0) CSC 618 Labs in Andrology, Reproductive Micro & Immuno (1)
11th semester – 4th Spring – 2 credit hours	**11th semester – 4th Spring – 2 credit hours**
CSC 767 Dissertation Research (2) CSC 602 Seminar (0)	CSC 790 Dissertation Research (2) CSC 602 Seminar (0)

12th semester – 4th Summer – 2 credit hours	12th semester – 4th Summer – 2 credit hours
CSC 767 Dissertation Research (2) Dissertation Defense	CSC 767 Dissertation Research (2r)
	13th semester – 5th Fall – 9 credit hours
	CSC 767 Dissertation Research (2) CSC 602 Seminar (0) CSC 621 Embryology and ART (3) CSC 624 Cryopreservation of Reproductive Tissues (2) CSC 625 Mgt., Policy, Ethical & Legal Issues in ART (2)
	14th semester – 5th Spring – 7 credit hours
	CSC 767 Dissertation Research (2) CSC 626 Andrology Clin Pract (2) off-site CSC 627 ART Clin Pract (3) off-site
	15th semester – 5th Summer - 2 credit hours
	CSC 767 Dissertation Research (2) Dissertation Defense

"En Passant" M.S. in Reproductive Sciences

Students successfully completing the first two years of the required curriculum in the doctoral degree **and** successfully passing the Qualifying Examination will be awarded an "en passant" M.S. in Reproductive Sciences. Although it is expected that most students will continue in the program and earn the Ph.D., there may be an occasional student who will to leave the Ph.D. program early and not complete the degree. For example, a student may be very successful academically during the coursework phase of the Ph.D., but encounter problems with the dissertation research and withdraw from the program without completing the doctorate. Other factors, including family problems and/or lack of financial resources, may force a student to depart from the program. The "en passant" M.S. gives students who find themselves in these predicaments the option of leaving in good standing, with a degree in hand, so that later in life they may be able to continue their graduate education or to assist them in obtaining employment. The M.S. degree would be very attractive for investigators seeking highly qualified individuals for research assistant positions. Also, awarding both the master's and doctorate degrees is appealing to students, providing them with a certain level of security as well as an additional credential/title.

In order to receive the master's "en passant" (or terminal master's) work completed, including completion of a successful Qualifying Examination, must be IDENTICAL to the first two years of the required curriculum in the doctoral degree. A successful qualifying examination will be accepted for the master's final examination. This degree will not be awarded if the student fails to pass the qualifying exam.

This M.S. is not to be confused with the M.S. in Clinical Sciences, RLS track, which is a clinical master's degree and different from the "en passant" M.S. degree will be maintained. It is foreseeable that some students completing the M.S. in Reproductive Sciences, but unable to complete the Ph.D., may elect to complete clinical education/training in RLS as a means of optimizing their career choices. An individual holding an M.S. in Reproductive Sciences who desires the RLS clinical education/training will be advised to apply for enrollment in the *Graduate Certificate* program in RLS to obtain the clinical credential. Because the prospective student already has a master's degree in reproductive science, the clinical curriculum could be completed in a relative brief time period (approximately eight months). Although the individual would not have the credentials to assume the higher level positions (e.g. ART laboratory director) that require the terminal Ph.D. degree in additional to clinical training, the combination of the M.S. and the *Certificate* would qualify the individual for research and supervisory positions in assisted reproductive technology laboratories and as well as related fields in ART, including clinical research, marketing, and employment with certifying and accrediting organizations such as the College of American Pathologists and agencies charged with regulating ART laboratory practice (the CDC and the FDA) in addition to positions in basic research.

In summary, students may complete the following:

- **Graduate Certificate in Reproductive Laboratory Science (RLS)**
- **M.S. in Clinical Sciences-RLS track**
- **M.S./Ph.D. in Reproductive Sciences**
- **Ph.D. in Reproductive Sciences + Graduate Certificate in RLS**

Course Title	Course #	Cr hr.	Grad Cert in RLS	M.S. in Clin. Sci/ RLS track	Ph.D. Repro Sci	Ph.D. Repro Sci + RLS Grad Cert
Reproductive Laboratory Science	CSC 615*	1	x	x		x
Andrology	CSC 616*	1	x	x		x
Reproductive Microbiology & Immunology	CSC 617*	1	x	x		x
Labs in Andrology, Reproductive Microbiology and Immunology	CSC 618	1	x	x		x
Laboratory Techniques	CSC 528**	2	+/-**	+/-**		x
Embryology & ART	CSC 521	3	x	x		x
Cryobiology of Reproductive Tissues	CSC 524	2	x	x		x
Management, Policy, Ethical and Legal Issues in ART	CSC 525	2	x	x		x
Seminar	CSC 602	1	--	x	x	----
RLS Research	CSC 604/630***	1-5		Min 3 hr	---	----
Research Methods	CSC 604	4			x	x
Clinical Practicum in Andrology	CSC 627	1-2	1 hr	2	--	1
Clinical Practicum in ART	CSC 628	2-3	2 hr	3	---	2
Statistics	STA 590	4	---	3	x	x
Math and Sci courses/per committee	Var	3-9	x	3-9	3-9	3-9
Biomolecules & Metabolism	IBS 601	3			x	x
Biomolecules & Molecular Biology	IBS 602	3			x	x
Cell Biology	IBS 603	3			x	x
Cell Signaling	IBS 604	3			x	x
Pathophysiology	CSC 600	4			x	x
Mammalian Reproduction	RSC 700	3			x	x
Advanced Reproductive Immunology	RSC 701	3			x	x
Molecular Reproduction	RSC 702	3			x	x
Biology & Therapy of Reproductive Cancer	RSC 703	3			x	x
Flow Cytometry	CSC 673	3			x	x
Research Methods	CSC 604	4			x	x
Seminar	CSC 602	1			Ea sem/cr 4 sem	Ea sem/cr 4 sem
Research Apprenticeship	CSC 789	1-4			Min 3	Min 3
Research-Prequalifying	CSC 790	Var			var	var
Ph.D. Qualifying Exam – MS 'en passant'****	N/A	N/A			x	x
Research-Post qualifying	CSC 767	2			2/sem	2/sem
Dissertation Defense	n/a	N/A			x	X

Red=courses currently taught; Green=courses offered in other departments; new RSC courses

***offered via distance learning; **required for students not having acceptable laboratory experience; *** Includes complete lectures in CSC 604, Research Methods for Clinical Sciences, but do not complete the grant writing assignments; didactic lectures are followed by a clinical research project in reproduction; ****students receiving the M.S. 'en passant', not**

completing the Ph.D. and wishing to complete the Graduate Certificate in RLS would be required to apply for the RLS Graduate Certificate program and would be considered in the overall applicant pool.

II.05 Advising

The Director of Graduate Studies (DGS), or designee, will serve as advisor to beginning graduate students until the advisory committee is appointed, not later than upon completion of 18 credit hours of course work, and at least one year prior to the qualifying examinations. The Advisory Committee will be appointed by the Graduate Dean in consultation with the DGS. The dissertation director, once selected, will serve as the major professor. The advisory committee will have four core members consisting of the major professor as chair, two other members from the major area, and at least one representative from any minor area(s). At least one representative must be from outside the academic program. All members of the core must be members of the Graduate Faculty of the University of Kentucky and three (including the major professor) must possess full Graduate Faculty status. The advisory committee provides advice to the student and specifically sets requirements that are within applicable program, Graduate School and University regulations, and which the student must meet in pursuit of the doctorate. The advisory committee is involved in the administration of the qualifying examination, the supervision of the preparation of the dissertation, and administration of the final examination.

II.06 Evaluation of Students in the in the Program

Academic Performance

Students must maintain a minimum 3.0 GPA on the 4.0 scale in order to take the qualifying examination. Students with an average of less than 3.0 for two consecutive semesters will require a majority vote of the faculty in order to continue toward the Ph.D. Students will be required to take the qualifying examination within five years of entry into the program and must complete all degree requirements for the doctorate within five years following the semester of summer session in which the candidate successfully completes the qualifying examination. Each student must complete an acceptable dissertation based on original research and is expected to publish their research findings in peer-reviewed scientific journals. The Final Examination will include a defense of the dissertation and may be as comprehensive in the major and minor areas the advisory committee chooses to make it. The examination will be a public event scheduled and announced beforehand.

Performance of Students

Students enrolled in the program will be evaluated using routine testing methods (e.g. examinations) in didactic courses. Students electing to complete the RLS clinical curriculum will be evaluated on performance in the student clinical laboratories (e.g. practical skill assessment) and during the clinical practica in andrology and embryology (refer to Checklists in Appendix H). Student research will be evaluated on the ability to assimilate knowledge and develop new ideas for research, the quality of work, the ability

to work independently and evidence of scholarship including publications in peer-reviewed scientific journals and presentations at national and international professional conferences.

A policy will be put in place for the faculty to meet with each student once a semester during the first two years of study and annually thereafter to discuss the student's performance, to identify any deficiencies or problems and to map an improvement plan for problem areas.

II.07 Program Evaluation

The program will be evaluated based on the diversity of the applicant pool, performance of students in the program, percentage of students completing the program of study, success of program graduates, and program name recognition.

Applicant Pool

Students will be recruited nationally and internationally. The program will be advertised on various listserves targeting professionals and graduate students in the field of reproduction and assisted reproductive technology (ART). National listserves will include EmbryoMail, Androlog and the roster for the Society for the Study of Reproduction. Program information will be shared with international listserves as well such as IVF.net. A program quality indicator will be the diversity of the applicant pool as well as the caliber of applicants based on GPA, GRE scores and record of past scholarship and professional accomplishments.

Percentage of Students Completing the Program

The number of students completing the program will be tracked to identify roadblocks to completion and allow faculty to address these areas, which in turn, would increase the number of program graduates.

Success of Program Graduates

Long term evaluation of the program will be based on the success of its graduates. An annual survey will be developed to collect information from graduates. The survey will be supplemented by tracking journal articles, citations and presentations at major scientific meetings. The following will be tracked: 1) whether the graduate continued to a post-doctoral position and, if so, the location of the university/laboratory; 2) professional position (s) following postdoctorate experience; 3) # of peer-reviewed scientific publications and the tier of the publication journal; 4) # of professional presentations; 5) grantsmanship; 6) significant service such as serving on NIH study section or journal editorship; 7) board certification in embryology and andrology for graduates that are directors of ART laboratories; and 8) outstanding graduates as demonstrated by special honors/awards.

Program Recognition
The program will also be evaluated by name recognition, including being listed as a reproductive training program/center (refer to Appendix I).

III. Explain resources (finances, facilities, faculty, etc.) needed and available for program implementation and support.

III.01 ***Resources Available***
The Division of Clinical and Reproductive Sciences is located in the new Charles T. Wethington, Jr., Jr., Jr. (CTW) Building that is well equipped with classrooms, student laboratories, research laboratories, student offices and conference rooms and student areas.

Faculty
Faculty with expertise in reproduction are a primary resource. Twelve core faculty members are appointed in Clinical and Reproductive Sciences. Seven faculty members have primary appointments in the unit (three in regular title series *with an ongoing search for a fourth member in this series*, two in the special title series, one in the research title series and one lecturer who serves as the education coordinator for the clinical curriculum). Four jointly appointed faculty members have secondary appointments in the Division of Clinical and Reproductive Sciences (two regular title series from the Colleges of Medicine and Agriculture and two special title series faculty from the College of Medicine). One clinical faculty member, who is a clinical assistant professor at Brown University, Providence, Rhode Island is appointed as adjunct faculty in the CRS Division. Among the core faculty there are two professors, five associate professors, two assistant professors, one lecturer, and one adjunct faculty member, who is appointed as clinical faculty at another university. (CVs for core faculty are included in Appendix C and a list of RLS clinical faculty can be found in Appendix A; CVs for associate faculty are located in notebook #2).

In addition to the core faculty, eleven faculty members from the University of Kentucky, College of Medicine are associate members of the faculty. Associate membership consists of six professors, five associate professors and two assistant professors. Fifteen academics and professionals from outside the University of Kentucky are appointed as clinical faculty to support the reproductive laboratory sciences curriculum. In addition to the clinical faculty, numerous clinicians and other professionals in the field of assisted reproduction contribute to the program as lecturers (Appendix A).

Research Facilities/Laboratories (refer to Appendix D)
Modern, well equipped research facilities are available for faculty and student research. Approximately 5,000 square feet of research space is available to the program faculty on

RLS Graduates

Graduates from the RLS programs are a resource as well. These former students promote the UK programs, and by making the program known and sharing their positive experience, they serve as recruiters for the applicant pool.

III.02 ***Resources Needed***

Fellowships are the ONLY resources being requested.

Although the Division of Clinical and Reproductive Sciences will not be included in UK's Interdisciplinary Biomedical Sciences (IBS) curriculum, the students will complete the first year of the Ph.D. program by taking IBS courses (Appendix J). Departments participating in the IBS curriculum contribute financially to provide students with fellowships while completing the didactic IBS courses that precede the matching of students with research mentors, who will then assume responsibility for future fellowships. In order to be competitive, students in the Reproductive Sciences Ph.D. program also must be provided with fellowships while completing the didactic IBS courses during their first year in the program. Beginning in year two, research mentors must be funded and able to assume the financial responsibility for fellowships for students accepted into their laboratories.

Funding for four fellowships (4 students @ $22,000 each for a total of $88,000) is being requested for the first Ph.D. class. A total of $66,000 (3 students @ $22,000) is requested for subsequent years. Two fellowships are being requested from the College of Health Sciences. A letter from Dean Gonzalez supporting this request appears in Appendix K). An operating budget for the Center of Excellence in Reproductive Sciences is being requested to include partial funding for two student stipends. Students in the Reproductive Sciences Ph.D. program will be eligible for this funding, but must compete with students whose mentors are also Center members not participating in the IBS curriculum in the College of Medicine (e.g. College of Pharmacy, College of Agriculture, etc.)

Academic Program Approval Checklist

IV.01 Are more Kentuckians ready for post-secondary education?

A. Entrance Requirements

1. Test scores (GRE, GMAT, LSAT, MCAT, ACT, SAT, etc.)

Graduate Record Examination (GRE) with minimum score of 1000 for verbal and math quantitative and 3.5 for quantitative.

2. High school/college GPA

A minimum cumulative undergraduate grade point average (GPA) of 3.0 on a 4.0 scale and a minimum GPA of 3.0 for any graduate work completed.

3. **Other required discipline knowledge unique to the proposed program**:

- A genuine desire to complete graduate work and basic research in reproductive science leading to a professional career in a research and/or clinically based field in reproduction.
- Bachelor's degree in science that includes the following courses:
  Biology (2 semesters)

Physiology (1 semester)
Chemistry (2 semesters)
Organic chemistry (2 semesters)
Physics (1 semester)
Statistics (1 semester)

- International applicants from non-English speaking areas must complete a TOEFL examination with a score of 550 (paper) or 213 (computerized). Applicants may satisfy the requirement by utilizing the International English Language Testing System (IELTS). A minimum mean band score of 6.5 is required.
- Once a student enters the program, a minimum of three years of contiguous enrollment in approved courses beyond the bachelor's degree is required for the Ph.D. (two years prior to the qualifying examination and one year of post-qualifying residency). A maximum of 9 semester hours of this requirement may be transfer credits for post-baccalaureate work completed in an accredited graduate degree program, excluding courses offered via distance learning courses. By the end of the program the student must demonstrate that he/she can work independently to conduct basic research. Students opting for clinical careers in reproductive science have the option to take reproductive laboratory science (RLS) clinical courses as electives.

B. Transfer Requirements

1. College Transfer GPA Per UK Graduate School rules, a student may transfer up to nine credit hours of non-distance learning coursework from an accredited university with the approval of the program and the Graduate School Dean.

2. Recommended/required preparatory courses (prerequisite courses)

Bachelor's degree in science that includes the following courses:

Biology (2 semesters)
Physiology (1 semester)
Chemistry (2 semesters)
Organic chemistry (2 semesters)
Physics (1 semester)
Statistics (1 semester)

C. Recruitment Plans

1. Plans to ensure success of students coming from "feeder institutions" (either colleges or high schools) N/A

2. Recruitment and marketing strategies to enroll a diverse student population.

Several strategies will be used to recruit both national and international students with a focus on diversity. Recruitment brochures will be developed and CRS website will be updated to reflect the new Ph.D. program. Brochures will be distributed to departments in biology, chemistry and clinical laboratory science throughout the United States. Academic advisors in the various science departments at the University of Kentucky will be contacted directly and provided with detailed information regarding the new program. The program opening will be announced on all active mailing lists that serve the field of reproductive science including, but not limited to EmbryoMail (www.EmbryoMail@anri.barc.usda.gov), IVF News and Announcements (Thomas@IVF.net) , Androlog (androlog@godot.urol.uic.edu), Society for the Study of Reproduction (www.SSR.org) and will be advertised on the website of the primary professional group for reproductive medicine, the American Society for Reproductive

Medicine or ASRM (www.ASRM.org). Brochures describing the program will be distributed at national/international professional annual meetings, including, but not limited to: 1) American Society for Reproductive Medicine; 2) Society for the Study of Reproduction; 3) Society for Endocrinology; 4) American Association of Cancer Research; 5) American Association of Bioanalysts; 6) Pacific Fertility Society; 7) American Association of Tissue Banks; 8) Society for Immunology and 9) the American Society for Clinical Laboratory Sciences. At the regional/state level, the program will be promoted at the annual meeting of the Kentucky Society for Clinical Laboratory Science. Recruitment literature will also be forwarded to associated support groups including Fertile Hope, Resolve and the American Fertility Society. In addition, all clinical and support faculty participating in the RLS master's program will receive recruitment packages for distribution.

To ensure that policies and procedures are followed for the for recruitment of racially and ethnically-diverse applicants, program faculty will seek guidance from the University of Kentucky's Office of Minority Affairs, the unit head of the Office of Multicultural Student Affairs (OMSA) and Professor Allan Richards, chair of the President's commission on Diversity. Recruitment activities will be focused within the Commonwealth of Kentucky to target minority populations. To ensure minority recruitment, program faculty will meet with the CHS Office of Student Affairs who will assist with this mission by promoting the Ph.D. in rural areas within the Commonwealth and by meeting with educators and college advisors in the Louisville area to ensure that local minority students, who are completing undergraduate degrees in science, are aware of the program.

IV.02. Are more students enrolling?

A. Explain the demand for the program by providing the following information:
1. Anticipated number of students from other majors (including undeclared) N/A
2. New students entering the program (including transfers)
A maximum of 9 semester hours of this requirement may be transfer credits for post-baccalaureate work completed in an accredited graduate degree program, excluding courses offered via distance learning courses. Students entering the program must have a minimum cumulative undergraduate grade point average (GPA) of 3.0 on a 4.0 scale and a minimum GPA of 3.0 for any graduate work completed. Students must meet all requirements for entry into the program in IV.01.
3. Recommended/required preparatory courses (prerequisite courses)
B. Detail recruitment plans (include specific plans to attract non-traditional students, including minorities, and to address gender related issues).
Non-traditional students will not be actively recruited for the Ph.D., which has the requirement for bench research and full time attendance. Recruitment plans described in IV.01.C detail strategies to ensure diversity and address gender issues.
C. **Contact the Associate Vice President for Employment Equity to obtain EEO plan and status information**

IV. 03. Are more students advancing through the system?

A. What is the anticipated time-to-graduation for full time students entering the program?

The Ph.D. program does not have a fixed time course and time for completion will depend on the progress of individual students. It is anticipated that a student with a bachelor's degree in science would complete the Ph.D. program in four-five years. Students electing to complete the Graduate Certificate in Reproductive Laboratory Sciences should expect to extend their time in the program by two semesters. This is a basic research Ph.D. program without an option for part-time students.

B. Explain any cooperative or practicum experience required to complete the program.

Students completing the RLS option will need to complete 5 credit hours of clinical practica in andrology and ART (assisted reproductive technology) at accredited ART Centers, andrology laboratories and gamete banks throughout the United States under the supervision of certified (licenses, if required by state) laboratory directors appointed as clinical faculty by the University of Kentucky.

C. Why do you desire to offer the program? Why is UK the right place to offer this program?

The desire to offer the program is based on input from UK's faculty in the field of reproduction as well as input from RLS graduates working in ART who stress need for a research-based Ph.D. program in reproduction with an option for a clinical curricular component. With faculty and resources already in place, we are well positioned to deliver the curriculum at the University of Kentucky.

Needs Assessment

It is not feasible to conduct a standard survey of need for reproductive scientists because of the demand for these professionals not only in the field of ART, but in numerous related disciplines including research, higher education, clinical practice, industry and policy. Furthermore the need continues to grow and encompass additional areas such as stem cell research. Absent a standard assessment tool, data were collected regarding the current (2007) positions requiring a Ph.D. in the field of reproductive sciences as well as new policies and regulations affecting future growth.

In order to obtain a 'snapshot' of positions that were advertised in 2007 that would require the Ph.D. degree, and specifically positions needing a Ph.D. with clinical training available in our program, several listserves were followed for the year, including those for Androlog, IVF.net, EmbryoMail along with ASRM's Career Corner. There was duplication among the sites with postings on EmbryoMail being representative of the collective groups. This site was selected for data because it was representative and because the site provides archives, allowing scrutiny of each position advertised (refer to: http://embryomail.anri.barc.usd.gov/). Forty Ph.D. level positions were advertised on the EmbryoMail roster in 2007. As denoted in the table below, a minimum of 10 of the positions (laboratory director and laboratory manager) advertised for a Ph.D. in reproductive sciences with clinical training like that offered in the current RLS curriculum. Twenty-eight positions were in research, requiring training and skills in basic

research (refer to Appendix L for complete position descriptions).

Positions Posted on the EmbryoMail ListServe – 2007

Position type	Number
Laboratory Director	8
Laboratory Manager	2
Management – government	1
Consultant	1
Senior scientist	5
Scientist	1
Pharmaceutical Research	1
Direct Research & Development– Industry	1
Faculty	2
Post-doc	16
Research Associate	2
TOTAL	**40**

Vacancies for high-complexity laboratory directors for ART are frequently filled without advertising. This trend was documented from data supplied by Medical Connections, Boca Raton, Florida, the only U.S. employment agency specializing in ART. In 2007 the agency handled 22 positions in the United States. Three of the 22 were also advertised on EmbryoMail and are included in the above table.

Medical Connections Listings for ART Lab Directors in 2007

Location	Number
California	7
Connecticut	1
Florida	1
Kansas	1
Minnesota	1
Nevada	1
New Jersey	1
New York	4
Ohio	2
South Dakota	1
Texas	1
Washington state	1
Total	**22**

Personal correspondence documented an additional five laboratory director positions filled in 2007 that were not advertised

Personal Correspondence (lab director or Ph.D. scientist/supervisor)

Location	Number
Massachusetts	3
North Carolina	1
Rhode Island	1
Texas	1
Total	**6**

In summary, there was a minimum of 24 vacancies for a Ph.D. ART laboratory-director in 2007.

Research and faculty positions requiring a Ph.D. in the area of reproduction were posted in numerous sites, including advertisements in professional journals, on listserves and university postings and with recruiters. In 2007 Medical Connections (Boca Raton, FL) handled research positions for Serono Pharmaceuticals and Genzyme and for genetic research divisions in unnamed companies and for post-docs for specialized positions in reproduction in university settings. Regulatory agencies also require graduates with the education and training provided by the proposed degree. The Center for Biologics Evaluation and Research (CBER), Food and Drug Administration (FDA) that regulates reproductive tissues, has unique opportunities for individuals with backgrounds in reproductive science (http://www.fda.gov/cber/inside/hirebkg.htm) as does the Centers for Disease Control and Prevention, CDC), responsible for implementation of the Fertility Clinic and Success Rate and Certification Act, including reporting of ART clinic data http://www.cdc.gov/search.do?action=search&queryText=positions. Professional associations responsible for certification of ART laboratories (the College of American Pathologists) and associated personnel (the American Association of Bioanalysts) require professionals with expertise in reproductive science. Industry (gamete banks, pharmaceutical companies, and ART equipment and supply companies) also recruit individuals with a Ph.D. in reproduction.

Current data and trends suggest that the need for these professionals will continue to increase as the number of ART clinics and research in the field of reproduction continues to expand. The 1997 CDC report data, reflecting activity in 1994 (reports lag by three years), documented that 335 reporting ART clinics performed 71,826 IVF and associated procedures. In 2007, one decade later, CDC reported that 411 clinics supplied data from 2004 and reported performing 127,977 ART cycles in 2004. The number of ART clinics and the number of procedures are creasing at a rapid rate. The most recent report (2007) showed an increase of 24 new ART clinics over the previous year. Refer to Appendix M for summaries.

Professionals qualified to direct all aspects of an ART laboratory (embryology and andrology) must be board certified as a high complexity laboratory director by the American Association of Bioanalysts (AAB). In order to quality, the individuals must have a doctorate degree in science, laboratory experience in clinical embryology and successfully pass a written examination

administered by the AAB (http://www.aab.org/hcld.htm). In past recent years, individuals certified as embryology laboratory directors (ELD) were qualified to direct embryology, but not andrology laboratories. Andrology falls under the regulatory Clinical Laboratory Improvement ACT (CLIA) that has more stringent requirements for andrology. The trend is now moving away from ELD directors in IVF laboratories for several reasons: 1) ELD certification was made available for a limited period of time to allow experienced embryologists already serving as directors to qualify and the certification will not be available in the future; 2) with an ELD directing the embryology portion of the laboratory, it was necessary to hire an off-site Ph.D., HCLD director to oversee the andrology portion of the practice in order to meet CLIA certification criteria; 3) absent advanced education and training, ELDs were not able to develop new, more complex procedures minimizing the offering of new tests (e.g. preimplantation genetic diagnosis or PGD and oocyte freezing in house) and 4) without scientific guidance many ART laboratories were unable to comply with new regulatory oversight of reproductive tissues by the FDA, which became effective in May, 2005 (http://www.fda.gov/cber/rules/gtpq&a.htm.

Additional federal oversight is anticipated, which will require advanced scientific training and expertise provided by the proposed Ph.D. program. For example, there is a national movement for development of a national gamete and embryo registry for tracking donors and donated sperm, oocytes and embryos.

The increase in technology and the need for expertise in the reproductive sciences extends well beyond the ART clinic and includes the areas of cryobiology and fertility preservation, stem cell research, transgenics and genetic therapy. The new NIH Roadmap for medical research and the directive to catalyze translational research has further strengthened the need for professionals with training and skills applicable to both basic research and clinical application in the field of reproduction. As the need for reproductive laboratory practitioners and researchers increases, so will the need for Ph.D. trained educators to prepare future scientists, practitioners and clinicians.

UK is the right place to offer the program

There are numerous reasons why the University of Kentucky is well positioned to offer the proposed program. First, the university has already taken the lead by developing and offering the first education programs in the United States in reproductive laboratory science. This established curriculum will serve as the clinical option in the Ph.D. program for students wishing to prepare for clinical careers in reproduction. Steps leading to the proposed Ph.D. have been in progress for an extended period. There is a pool of faculty with expertise in the area (refer to Appendices A and C and Notebook 2) who have provided education in the discipline. Absent a formal curriculum in the discipline, reproductive faculty have given lectures in various undergraduate and graduate courses and have mentored students from other programs in their laboratories. Faculty and post-doctoral students have met weekly at the Reproductive Forum for the past 28 years, presenting research findings and providing mentorship for young scientists. For the past 27 years this group has sponsored an annual symposium, with internationally recognized scientists presenting current research. This work has been supported by NIH

funded Center Grants with both the COBRE for Women's Health and the BIRCWH (Building Interdisciplinary Research Careers in Women's Health) established in 2000.

During the past five years, there have been major efforts to further consolidate the field of reproduction. Faculty positions and additional laboratories and facilities have become available in the College of Health Sciences, including the Embryology Teaching/Research Laboratory and the Mouse Tissue Bank. External funding in reproduction has increased significantly (Appendix E), and recognition is more prominent as documented by national and international presentations (including invited presentations), publications in prestigious scientific journals and collaborations with leading scientists in the field (refer to Appendix C). These efforts and advancements culminated in plans for a interdisciplinary Center of Excellence in Reproductive Science (Appendix G) that would support the interdisciplinary Ph.D. in Reproductive Sciences.

The Ph.D. in Reproductive Sciences merges with the University of Kentucky's Strategic Plan goals: Goal I: Enhance the University's Stature among its Peers: the Ph.D., which will be the only one in the United States that offers the option for clinical training in a basic science Ph.D. program. The program will be listed with similar Ph.D. programs in reproduction in the U.S. being offered at prestigious universities, including Johns-Hopkins and Northwestern University. Funding and research will promote UK's status toward the Top 20 Goal III: Enhance the Intellectual and Economic Capital of Kentucky through Growth in Research. Faculty in various departments will teach in the program and will continue to collaborate on research Goal IV: Embrace and Nurture Diversity. A diverse faculty will recruit a diverse student body. Faculty members in the Division of Clinical and Reproductive Sciences are represented by both genders (4 males; 4 females) and are ethnically diverse with members from Korea, India, Australia and Great Britain represented. Program graduates have been, and continue to be ethnically diverse as well. Past graduates and current students include individuals from Africa, China, Europe, India, Iran, Jamaica, Jordan, Kazakhstan, Saudi Arabia, South Africa and Vietnam. Research faculty members in the unit routinely sponsor post-doctoral candidates and visiting professors from international universities and ART programs. With international representation of faculty and students has served to create an environment that is sensitive to and nurtures diversity.

Include a list of other Kentucky institutions offering similar or related programs at this and other levels. There are no similar or related programs offered at other institutions in Kentucky or in the region (refer to Appendix I for list of Ph.D. programs in Reproduction in the United States.

List courses from in-state institutions that will transfer into the program. The University of Kentucky Graduate School will accept up to nine hours of approved (non-distance-learning) transfer credits. Graduate level (600) sciences courses could be transferred from the University of Louisville (e.g. MBIO 667, Cell Biology could substitute for IBS 603, Cell Biology). A 500-600 level statistics course for 4-credit hours also could transfer to substitute for STA 570, Statistics. These courses are offered in other UK departments and are not specific for the discipline. Advanced courses in the program are at the 700 level, unique to discipline and not offered elsewhere in the Commonwealth of Kentucky.

48 Hour General Education Transfer Component – N/A

12 Hour Transfer Articulation Agreement – N/A

List courses offered that will transfer into similar programs at other state institutions. Graduate level (600) courses could transfer to the University of Louisville (e.g. MBIO 667, Cell Biology could substitute for IBS 603, Cell Biology). STA 570 could transfer to the University of Louisville as a substitute for PHST-600, Introduction to Biostatistics I. Again, these courses are offered in other UK departments and are not specific for the discipline. Advanced courses in the program are at the 700 level, unique to discipline and would not transfer elsewhere in the Commonwealth of Kentucky.

Provide information about completed, signed articulation agreements. N/A

D. Delivery

1. What plans are in place for delivering this program through the Kentucky Virtual University of other distance learning technologies? N/A

2. What courses can be offered in a non-traditional mode?

Students electing to complete the RLS option will complete CSC 615 (Reproductive Laboratory Science- 1 credit hour), CSC 616 (Andrology – 1 credit hour) and CSC 617 (Reproductive Microbiology and Immunology – 1 credit hour) via distance or distributive learning using CD-Roms and Blackboard. No other courses in the program will be offered via distance learning.

E. Collaborative Efforts

1. Future proposals must provide evidence of consultation with other programs in the state and either documentation of collaborative agreements or strong arguments for why they are not feasible. Collaboration with other programs is not feasible since this is a Ph.D. requiring basic research with an option for the clinical RLS component. The RLS program is one of three in the United States with no comparable programs in Kentucky. It should be noted that there is collaboration within the University of Kentucky with associate faculty in the Colleges of Medicine and Agriculture (see Appendix C for faculty CVs and contributions to the Ph.D.). Associate faculty will contribute directly to the education mission of the program, giving lectures and mentoring students in their laboratories. Student mentoring in these laboratories allows increased enrollment for the research-intensive program. Core faculty are supported by the COBRE grant. The Ph.D. program is supported by faculty who will be members of the Center of Excellence in Reproductive Sciences. This Center has been proposed as a joint venture between the Colleges of Health Sciences and Medicine and is supported by the deans of both colleges. In addition to membership in the Colleges of Health Sciences and Medicine, faculty from other colleges (e.g. College of Agriculture) with expertise and interest in reproduction and related fields will also become Center members. It should be further noted that there are collaborative efforts nationwide for this Ph.D. with professionals throughout the United States appointed as adjunct and clinical faculty by the University of Kentucky

2. Collaborative agreements should define shared use of resources to improve program quality, efficiency, and student placement. N/A.

IV 04. Are we preparing Kentuckian's for life and work?

A. How does the program prepare Kentuckians for life and work? The program will prepare Kentuckians for life by providing higher education in a unique and expanding field that may have a direct impact on their health (e.g. reproductive cancers and disorders) and increasing knowledge in the area to prepare individuals with infertility or reproductive problems to look to

professionals properly trained to address their concerns. The increased knowledge will also help prepare individuals, parents, and counselors regarding the prevalence of sexually transmitted infections and the long term implications of the diseases. The Ph.D. program in Reproductive Sciences will create a new career ladder for science and medical technology graduates, who are interested in the field of reproduction, and who wish to pursue higher education within the Commonwealth of Kentucky. The program will lead to increased federal funding at the University of Kentucky which, in turn, will provide new faculty and staff jobs for Kentuckians at the University of Kentucky. By encompassing this rapidly expanding field of science and medicine, new jobs in reproduction and related fields will be created for Kentuckians.

B. What are the accreditation expectations for this program? None at present.

C. Are there licensure, certification or accreditation requirements for graduates of this program? Graduates completing the RLS option must be board certified as a high complexity laboratory director in order to direct an ART laboratory. Refer to Appendix N.

D. What are the projected degree completions? (CPE Productivity triggers are: 12 Associate and Baccalaureate, 7 Master and Specialist, 5 Doctoral per year). The projected number of graduates per year is three. Student Numbers:

Four students will be accepted the first year the program is offered and three students will be accepted in all subsequent years. Once the program is established, there would be an average of 12 students in the program at different levels of progression. Of the 12 students enrolled, only 9 would be doing research in the laboratories. Year one students would be completing didactic course work in the IBS curriculum and supported with fellowships provided by the College of Health Sciences and the Center for Reproductive Sciences. Beginning in year two, students will be in the research laboratories and must be financially supported with grants awarded to their major advisor/research mentor. Because the program requires intensive laboratory training and continued financial support for students, and based on the current number of core and associate faculty, the number of graduates will be limited to three. Number of students accepted into the program and number of graduates will increase as faculty numbers and associated funding increases.

Year	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Total	Total In lab *	# grads
1 - 2009	4	-	-	-	-	-	-		0	0
2 - 2010	4	3	-	-	-	-	-	7	4	0
3- 2011	4	3	3	-	-	-	-	10	7	0
4 - 2012	4	3	3	3	-	-	-	13	10	4

*Year 1 students in IBS courses, not in research laboratories.

Projected enrollments are conservative based on current resources. Enrollments will increase with the following: 1) increased number of faculty; 2) increased research funding; 3) growth of the Center of Excellence in Reproductive Sciences and 4) increased program recognition leading to greater numbers of research faculty outside the unit mentoring students in research. Faculty will write a NIH Training Grant for the Ph.D. once the proposal is approved. This type of award would provide additional funding for student stipends, allowing the program to further increase enrollment. Graduate students will also be encouraged to apply for NIH fellowship grants to support their research.

IV 05. Are Kentucky's communities and economy benefiting?

A. Describe external advisory groups involved in the development of this program (e.g. disciplinary groups, community, government, business, and labor interests). Clinical faculty and lecturers, who have contributed to the RLS education programs since conception, have acted in an advisory capacity to the development of this proposal.

B. What are the employment expectations for graduates? Document the contributions of the program to current workforce needs in the state. Refer to Section IV.03.C, which discusses the need for the program. There are currently more than 460 ART clinics that must be directed by Ph.D. scientists in reproduction and the number of clinics continues to increase. There are four ART clinics in Kentucky and several in the region (TN=7, VA=13, WVA=2, OH=12, IL=29 and MO=8. Graduates with a Ph.D. in Reproductive Sciences are also marketable in related areas in research, academics, industry, and government. Graduates from the RLS Master's degree and Graduate Certificate programs are good indicators of need. The placement of graduates from the RLS Master's program and Graduate Certificate programs are good indicators of need for professionals in the field. All graduates continue to be highly competitive for positions throughout the U.S. Graduates have been (some returned to school for Ph.D. or M.D.) or are employed throughout the country (CA, FL, TN, TX, MA, VA, OH, NC, KY). Several have moved into supervisory positions in ART laboratories. Four graduates have been employed in the field within the state of Kentucky and one in nearby Cincinnati. Based on past history, current need and future forecasts, the potential for employment for the graduates should be excellent (Appendix B). The Ph.D. will not directly address the workforce needs in the state of Kentucky, but will have an impact on workforce needs nationally.

C. **What other benefits to Kentucky's community and economy will the program provide?**

Healthcare Benefits:

The program will provide benefits to Kentucky's community by providing education and professionals to attack major healthcare concerns in the state, including cancers for the male and female reproductive tracks. Reproductive cancers affected 23,002 Kentuckians between 2000-2004 with 14,242 cases of reproductive cancers in males and 6,513 cases in females (http://cancer-rates.info/ky/index.html: http://cancer-rates.info/ky/index.htmml). Cancer research within the program will address reproductive cancers with a focus on breast cancer and prostate cancer. In 2004, 186,772 women and 1,815 men were diagnosed with breast cancer and 40,954 women and 362 men subsequently died from the disease (http://www.cdc.gov/pring.do?url=http%3A2F%Fwww.cdc.gov%Fcancer%2Fbreast%2Fstatistics%2Fn). The statistics included 3,324 Kentucky women and 18 Kentucky men diagnosed with the disease. Prostate cancer was the most common form of cancer, other than some kinds of skin cancer,

among men in the United States in 2004 with 189,075 men in this country diagnosed with prostate cancer and 29,002 men from the disease (http://www.cdc.gov/print.do?url=http%3A%2Fwww.cdc.gov%2Fcancer%2Fprostate%2Fbasic_info%2F). Data for prostate cancer incidence in the Commonwealth of Kentucky (2000-2004) documented 13,542 cases of prostate cancer (http://cancerrates.info/ky/index.html). Program faculty members (both CRS faculty and associate members) have received NIH funding to address both prostate and breast cancer. One faculty member is funded by the NIH to research novel treatments for cancer, including prostate cancers and also received the Susan G. Komen Breast Cancer Foundation grant to address new cures for breast cancer. In addition to cancer, research will address other diseases of the male and female reproductive tracks. Male and female factors leading to infertility also will be studied, including endometriosis and polycystic ovarian syndrome.

Students and faculty in the program also will conduct research on sexually transmitted infections (STIs). The Centers for Disease Control and Prevention (CDC) estimate that approximately 19 million new cases of STIs occur each year, almost half of them among young people ages 15-24. The report notes that in addition to physical and psychological consequences of STIs, these diseases also exact a tremendous economic toll. Direct medical costs associated with STIs in the United States were estimated at up to $14.7 billion annually in 2006 U.S. dollars (http//www.cdc.gov/std/stats/trends2006.htm). Sexually transmitted infections are a major concern within the Commonwealth of Kentucky. For example, in 2005 there were 4,424 cases of AIDS in the state with ~14% contracted sexually. Although the cases of syphilis, including congenital syphilis, decreased from 1996 to 2005, the number of non-congenital cases has increased since 2003. The number of cases of gonorrhea dropped slightly between the years 1996 and 2005, but the number of cases of *Chlamydia* increased (http://www.cdc.gov/nchhstp/stateprofiles/Kentucky/Kentucky_Profile.htm).
The above report documented that in 2006, the CDC funded prevention programs in Kentucky for nearly $3.5 million ($2.3 million for HIV/ADIS and $1.2 million for STIs).

Economical benefits

In addition to the health-related benefits discussed, the Ph.D. program will provide other economical benefits to Kentuckians. The program will add to the number of students completing higher education in the Commonwealth. The Ph.D. in Reproductive Sciences, with the option for the added clinical component, makes the doctoral degree unique. Without a similar program in the U.S., students will relocate to Kentucky to complete the doctoral degree and many of these professionals, as well as graduates who are Kentucky residents, will remain within the Commonwealth, increasing the number of professional scientists in the state. With many career options for the graduates, these professionals will contribute to new employment areas within the state (e.g. university faculty and scientists in the field of reproduction).

Graduate students will represent additional personnel for laboratory projects that will promote an increase in research and opportunities for federal funding. Overall, the number of students completing the program will increase research at the University of Kentucky, leading to university recognition, which will have a positive impact on the community and the economy.

These benefits to Kentuckians are in line with the 2006-2009 Strategic Plan Objectives including *Goal III: Enhance the Intellectual and Economic Capital of Kentucky through Growth in Research and Goal V: Engage Kentuckians through Partnerships to Elevate Quality of Life*.

D. Explain specific benefits of the program.

Specific benefits of the program include the following:

- Increase in the number of Ph.D. students at the University of Kentucky
- More advanced level courses offered for students in the program and as electives for other graduate students
- Added area of emphasis at the University of Kentucky
- Interdisciplinary Ph.D. program will promote inter-professional relationships and teamwork to better address areas of concern
-
- Establishes a forum for translational research in reproduction
- Increase federal funding at the University of Kentucky
- Will be a key area, along with research and service, for the proposed Center of Excellence in Reproductive Sciences.

These benefits support *Goal I* of the University of Kentucky's *Strategic Plan for 2006-2009*: *Enhance the University's Stature among Its Peers*. The University of Kentucky would join other top ranked universities such as Cornell and Johns Hopkins, (Refer to Appendix I for list of universities offering doctoral education in reproductive sciences).

KENTUCKY

College of Health Sciences
Office of the Dean
Wethington Bldg. Rm 123
Lexington, KY 40506-0200
859 257-3304
fax 859 257-2655
www.uky.edu

April 2, 2008

MEMORANDUM

TO: Kumble Subbaswamy, Provost

FR: Lori Gonzalez, Dean
College of Health Sciences

RE: Reproductive Sciences Ph.D. Proposal
Support for Doctoral Students

The College of Health Sciences agrees to provide annual stipends totaling $44,000 per year ($22,000 per student). This will allow two students to have funding each year. The program would likely assign these funds to first year students with subsequent years being funded through grants. The funding from the Office of the Dean will be in place for a total of three years. During the first three years, the program will seek support funds for these scholarships from alternate sources (donor gifts, indirect cost return, grants, etc.). However, if the program has not secured sufficient funds to support two students, the College will assist for a reasonable period while other funding mechanisms are identified.

We support the development of this program and will support the students who enroll. Please let me know if you have any questions or need additional information.

seeblue.

Brothers, Sheila C

~~59~~ ~~02~~

From: Mendiondo, Marta
Sent: Monday, March 16, 2009 1:16 PM
To: Brothers, Sheila C
Cc: Arrington, Michael; Barnes, Thomas G; Hayes, Jane E; Schoenberg, Nancy E; Smith, Richard; Waterman, Richard; Wermeling, Daniel
Subject: SAPC

Sheila,
At the March 13th , 2009 meeting the Senate Academic Programs Subcommittee decided:

Recommend the approval of the:

2) **New MS/PhD in Reproductive Sciences** – Recommend its approval provided there is no funding issues. The College of Health Sciences is offering to provide two fellowships and is asking for support for two additional ones

Let me know if you need any additional details.

The committee plans to discuss (and approve if there are no problems)via email the New PhD in Epidemiology and Biostatistics and New MS in Epidemiology as soon as the members have time to review them. We are trying to facilitate this year's Senate approval of these programs so they can start in August 09.

By the way, the New MS in Epidemiology is the full name, without Biostatistics for the MS.

Marta

Marta S. Mendiondo,PhD
University of Kentucky College of Public Health - Biostatistics Department
121 Washington Avenue - Suite 201 - Lexington, Kentucky 40536-0003
Sanders Brown Center on Aging
Rm 309B Sanders-Brown Bldg. - 800 S. Limestone St. - Lexington, KY 40536 - 0230
(859) 257-1412 ext 274 - FAX (859) 323-2866
marta@email.uky.edu

Statement of Confidentiality: The contents of this e-mail message and any attachments are confidential and are intended solely for addressee. The information may also be legally privileged. This transmission is sent in trust, for the sole purpose of delivery to the intended recipient. If you have received this transmission in error, any use, reproduction or dissemination of this transmission is strictly prohibited. If you are not the intended recipient, please immediately notify the sender by reply e-mail or at 859-257-1412 x 241 and delete this mssage and its attachments, if any.

UNIVERSITY SENATE REVIEW AND CONSULTATION SUMMARY SHEET

Proposal Title: **New Program Proposal – Master of Science in Clinical Research Design**

Proposal Contact: **Dr. Richard Kryscio**
121 Washington Avenue, Room 200
257-4064 or via email at kryscio@uky.edu

Senate Council 4/23/2009 11:09:28 AM
Degree program name has changed throughout the proposal.
NEW NAME IS "MASTER OF SCIENCE IN CLINICAL RESEARCH DESIGN"

Instruction: To facilitate the processing of this proposal please iden
person for each entry, provide the consequences of the review (specifically, approval, rejection, no decision and vote outcome, if any) and please attach a copy of any report or memorandum developed with comments on this proposal.

Reviewed By	Contact person	Consequences of Review	Date of Proposal Review	Review Summary Attached?
Council on Post-Secondary Education	James Applegate, Vice President of Academic Affairs	Approved	12-13-06	Yes
Academic Affairs Committee	Marta Mendiondo, Chair	Approved	12-7-07	Yes
Faculty Council	Glyn Caldwell, Chair	Approved	12-13-07	Yes
Office of Academic Affairs	Linda Alexander, Associate Dean	Approved	1-18-08	Yes
HCCC	Heidi Anderson	Approved	7/15/08	—

Revised name (from "MS Clinical Research") "MS Clinical Research Design"

Approved by HCCC Chair Anderson
Approved by GC Chair Jackson
Approved by Senate's Academic Programs Committee

From: Mendiondo, Marta
Sent: Monday, March 16, 2009 1:16 PM
To: Brothers, Sheila C
Cc: Arrington, Michael; Barnes, Thomas G; Hayes, Jane E; Schoenberg, Nancy E; Smith, Richard; Waterman, Richard; Wermeling, Daniel
Subject: SAPC

Sheila,
At the March 13th , 2009 meeting the Senate Academic Programs Subcommittee decided:

Recommend the approval of the:

1) **New Program: MS Clinical Research** - Recommend its approval provided the name of the program is revised, due to the generality of this name and the potential confusion with the **Masters of Science in Clinical and Translational Science** already being offered (http://ccts.uky.edu/TEAM/curriculum.aspx).

Degree program name is "Master of Science in Clinical Research Design"

Marta

Marta S. Mendiondo,PhD
University of Kentucky College of Public Health - Biostatistics Department
121 Washington Avenue - Suite 201 - Lexington, Kentucky 40536-0003
Sanders Brown Center on Aging
Rm 309B Sanders-Brown Bldg. - 800 S. Limestone St. - Lexington, KY 40536 - 0230
(859) 257-1412 ext 274 - FAX (859) 323-2866
marta@email.uky.edu

Statement of Confidentiality: The contents of this e-mail message and any attachments are confidential and are intended solely for addressee. The information may also be legally privileged. This transmission is sent in trust, for the sole purpose of delivery to the intended recipient. If you have received this transmission in error, any use, reproduction or dissemination of this transmission is strictly prohibited. If you are not the intended recipient, please immediately notify the sender by reply e-mail or at 859-257-1412 x 241 and delete this mssage and its attachments, if any.

UNIVERSITY OF KENTUCKY

Dream · Challenge · Succeed

COLLEGE OF PUBLIC HEALTH

M E M O R A N D U M

TO: **Health Care Colleges Council**

FROM: **Linda A. Alexander, EdD**
Associate Dean for Academic Affairs

SUBJECT: **New Program Proposal – MS in Clinical Research** Design

DATE: **January 31, 2008**

It is the intention of the College of Public Health to begin offering a new degree program – a Master of Science in Clinical Research.

In November 2006, our college applied to the Kentucky Council for Post-Secondary Education for permission to develop a proposal for this new degree. The CPE posed several questions of us, which we answered, and on December 13, 2006, Provost Subbaswamy received notification that the CPE granted permission for us to develop the program.

After the full proposal was completed, it was reviewed and approved by the Academic Affairs Committee and the Faculty Council, according to our college's established bylaws.

After this initial approval, a name change was proposed and both of the reviewing bodies of the college approved it. Documentation of this approval is also attached.

Further information about this course can be obtained by contacting the program's proposed DGS, Dr. Richard Kryscio, at 257-4064 or via email at kryscio@uky.edu.

Office of the Dean
121 Washington Ave., Suite 112 · Lexington Kentucky 40536-0003
(859) 218-2247 · *fax* (859) 323-5698
www.mc.uky.edu/PublicHealth
An Equal Opportunity University

KENTUCKY COUNCIL ON
POSTSECONDARY EDUCATION

Received
DEC 20 2006
Office of the Provost

Ernie Fletcher
Governor

1024 Capital Center Drive, Suite 320
Frankfort, Kentucky 40601
Phone (502) 573-1555
Fax (502) 573-1535
http://cpe.ky.gov

Thomas D. Layzell
President

December 13, 2006

Kumble Subbaswamy
Provost
University of Kentucky
106 Gillis Building
Lexington, Kentucky 40506-0033

Dear Swamy :

The 45-day review period for the University of Kentucky's proposed Master of Science in Clinical Research has ended. You are now free to complete your internal program development and approval process. Because the program falls outside the university's program band, it is subject to full review by the Council on Postsecondary Education prior to implementation.

We look forward to receiving the full proposal once your governing board has taken action. The format for the full proposal, including the financial analysis form, can be found at the bottom of the KPPPS main menu at http://apps.cpe.ky.gov/kppps/MainMenu.asp.

In the full proposal, please address the issues raised by CPE staff in the December 7th posting on KPPPS:

1. If the program is to start in January 2007, how will practicing physicians, dentists, nurses, pharmacist and psychologists will be recruited to participate?
2. Distance Learning is addressed as being an alternative delivery system. How many of the courses are currently offered online? How many are expected to be offered online in the next three years?
3. What is the estimated degree production in this program?
4. What is the documented demand for such a degree?
5. Is this program necessary to do population-based research and clinical trials?
6. Will the curriculum be taught by existing faculty? Will new resources be needed for this degree program?

Kumble Subbaswamy
December 13, 2006
Page Two

If you have any questions, please contact Melissa Bell at Melissa.Bell@ky.gov or 502-573-1555 ext. 357.

Sincerely,

James. L. Applegate
Vice President of Academic Affairs

Response to Comments from CPE
Master of Science in Clinical Research Design

1. *If the program is to start in January 2007, how will practicing physicians, dentists, nurses, pharmacist and psychologists will be recruited to participate?*

   With approval of the program by CPE, we will begin to follow the University of Kentucky and CPE guidelines for the development and approval of new programs in January 2007. We anticipate recruiting students into the program no earlier than January 2008.

2. *Distance Learning is addressed as being an alternative delivery system. How many of the courses are currently offered online? How many are expected to be offered online in the next three years?*

   Our response to the delivery of distance learning coursework was based on the question on the KPPPS Posting Form. We intend to accept coursework taken as a part of a distance learning program offered at other institutions as it relates to clinical research on a case-by-case basis with approval of the program director. Specifically, we are planning to accept the introductory courses in biostatistics and epidemiology offered on-line through the School of Public Health at the University of Louisville.

   There are no current plans by the University of Kentucky College of Public Health to develop on-line courses for this program. As we do with all of our graduate-level programs, we will assess during the next three years whether there is a need to offer courses related to this Master's degree via a distance learning model.

3. *What is the estimated degree production in this program?*

   The estimated degree production in this program is at least six per year.

4. *What is the documented demand for such a degree?*

   The current K-30 Certificate program is the basis for this Master's degree program and has had 25-30 participants at any given time during the last six years.

   Funding for the K-30 program is being phased out and is being replaced by the Clinical Translational Sciences Award (CTSA) Program. Medical schools across the country are applying for these awards, and a required component for CTSA is the development of a new academic discipline in clinical translational science. The proposed MS in Clinical Research is consistent with the requirements of the CTSA application.

   For detailed information about the K-30 Certificate Program and the CTSA Awards, please visit:

   http://www.mc.uky.edu/medicine/research/clinical/ctsa/default.asp

Response to Comments from CPE
Master of Science in Clinical Research Design
Page Two

5. *Is this program necessary to do population-based research and clinical trials?*

   Yes. The MS in Clinical Research provides physicians and other health care professionals with the competencies to perform population-based research and clinical trials in accordance with the concept of bench-to-bedside (translational) practice.

6. *Will the curriculum be taught by existing faculty? Will new resources be needed for this degree program?*

   Yes, the curriculum will be taught by existing faculty; no additional resources are required at this time. However, as the program expands there may be a need for additional faculty.

REQUEST FOR A NEW PROGRAM

Degree title: Master of Science in Clinical Research Design

Major title: Option: Major code in SIS:

Primary College: College of Public Health

CIP Code: 51.1401 Medical Scientist, MS

Accrediting Agency: N/A

Contacts:

The following two individuals have agreed to be co-Directors of Graduate Studies for this degree program: Richard J. Kryscio
kryscio@email.uky.edu 257-4064 David M. Mannino
Dmannino@uky.edu 323-6608

I. Abstract

A. Purpose

The proposed program is designed to prepare practicing health care professionals and students pursuing a terminal degree to conduct population-based research and clinical trials.

B. Target Audience

Practicing health care professionals (MDs, DMDs, PharmDs, Clinical Psychologists, etc.) and those pursuing a terminal PhD in fields like pharmacy, nursing, and psychology, who wish to enhance their translational research skills, and knowledge of population-based health and clinical trials. Clinicians with academic appointments at the University of Kentucky (UK) and physicians off campus, including community-based physicians who wish to participate in clinical research, will be targeted for this program. Providing community-based clinicians this degree program is novel and helps UK build a community-based research infrastructure throughout the commonwealth.

C. Need

The critical need for health care professionals qualified to conduct population-based research or clinical trials is evidenced by the fact that institutional eligibility for a Clinical Translational Sciences Award (CTSA), which are currently being

granted by the National Center for Research Resources, requires the existence of a graduate school accredited to award higher degrees in clinical research. In order for UK's application for this award to be competitive, translational research must be defined as a discipline.

MDs interested in an academic appointment will find that this degree program will make them competitive for the best positions, where research skills are becoming the norm. Others, such as doctoral candidates in the basic sciences, pharmacy, dentistry, nursing, and psychology, will also find this program attractive for similar reasons. Researchers in the basic sciences and pharmaceutical sciences are under increasing pressure to conduct translational research, while researchers in dentistry, nursing and psychology are being encouraged to take an active role in community-based research.

D. Relation to Certificate in Clinical Research Skills program

The program is designed to accommodate graduates of the Certificate in Clinical Research Skills program in clinical and translational science for health-based professionals. The MS program is designed so that once a student has completed the graduate certificate he/she can seamlessly transfer into the program. This is true for students enrolled in the current graduate certificate housed within the College of Public Health, as well as students who will be enrolled in the new proposed graduate certificate program in clinical research skills housed within the College of Medicine (www.ctsc.uky.edu/team_curriculum.htm). All credits earned for the certificate count toward the proposed MS program as either a required or elective course. Hence, the certificate programs are feeder programs for the MS degree, especially for those certificate students seeking to earn a formal degree in population-based research.

The certificate programs emphasize competency training in clinical and translational research methodologies, leadership, communication, and teamwork skills. The program also requires formal training in ethical conduct of clinical research and elementary biostatistics. However, the certificate is not considered to be a strong enough credential for clinicians and doctoral students seeking to do population-based research. A degree at the master's level with didactic training in epidemiology and biostatistics provides these minimum skills. The curriculum requires creating no additional courses other than what are already offered for other degree programs.

E. Relation to current MPH Program

The current MPH program now requires 42 credit hours, which includes a three credit hour practicum course and a required capstone project. The proposed MS program will be an attractive alternative to the MPH, requiring fewer credit hours for those students looking to build their translational science research skills who

do not need the public health practitioner focus of the current MPH degree program. Faculty seeking training grants will also find this program attractive, and the program is designed to appeal to these potential students as well.

F. Mentorship

The proposed master's program requires formal mentoring and a formal graduate level thesis. To facilitate these activities, the newly formed Career Development Office will support the recruiting of graduates of the certificate programs into this MS program. If the CTSA application is successful, it plans to provide financial resources to enable students who have completed a certificate to finish this program in one year's time. Regardless of funding, it will also act as a conduit to match students with mentoring teams that will facilitate the successful completion of the mentored research experience, as well as the MS thesis.

G. Collaboration Opportunities

Currently there are no plans to collaborate with other institutions on this program. Participation in the Kentucky Virtual University will be limited to accepting, on a case by case basis, credit for courses completed on the web, provided the Director of the program approves the course for credit. There are no plans to develop or offer the curriculum over the Kentucky Virtual University as insufficient demand would make developing this curriculum over the web too costly. Since the mentoring and thesis supervision components of the degree program are where the additional effort will be needed on the part of faculty, the goal is to offer this curriculum while utilizing as few additional resources for the program as possible to cover formal classroom instruction.

H. Summary

In summary, the goal of the proposed MS program is to provide training in a new discipline: clinical translational science with an emphasis on population-based health knowledge and clinical trials. As all coursework required in the existing certificate program is directly transferrable into the MS degree program, students will experience a seamless transition from the current and revised graduate certificate program in clinical translational science. The requirement of a formal mentored thesis in the program assures that earning this degree will necessitate the development of research skills.

II. Program Description

Curriculum

Students will complete a minimum of 31 credit hours of study. The core curriculum consists of 13 hours comprising five courses, two each in epidemiology and

biostatistics, and a one-credit-hour course that will serve as a broad introduction to public health. Students will also complete a minimum of 12 credit hours of electives. In addition, a three-credit-hour practicum in mentored research and three credit hours of thesis research are required.

Core curriculum (13 hours)

CPH 605 Introduction to Epidemiology (3) This is an initial graduate level course in the principles of epidemiology and applications in preventive medicine and environmental health. The course consists of lectures and informal discussions. Principles and methods of epidemiologic research with a focus on issues of study design and analysis will be presented.

STA 580 Biostatistics I (3) Descriptive statistics, hypothesis testing, paired and unpaired tests, ANOVA, contingency tables, log rank test, and regression with biostatistics applications.

CPH 712 Advanced Epidemiology (3) This course provides specialized epidemiologic content and method designed to meet the research and practice needs of health professionals. Practice-based problem sets and hands-on computer assignments will complement this seminar-oriented course, focusing on the role of epidemiology in the prevention of disease and injury.

CPH 630 Biostatistics II (3) Students will learn statistical methods used in public health studies. This includes receiver operator curves, multiple regression logistic regression, confounding and stratification, the Mantel-Haenszel procedure, and the Cox proportional hazardous model. Lecture, two hours; laboratory, two hours per week.

CPH 701 Current Topics in Public Health (1) A survey seminar course for students in M.S. and PhD programs in the College of Public Health. The course introduces broad concepts on the role, responsibilities, structure, funding etc of public health. While all core areas of public health will be introduced special attention will be given to health behavior/behavioral health, environmental health and health policy/management.

Electives (12 hours – selections to be approved by the DGS)

CPH 665 Ethical Issues in Clinical Research (3) Based on NIH guidelines for Responsible Conduct of Research, this course presents ethical and regulatory guidelines for conducting clinical research.

CPH 664 Biostatistics in Clinical Trials (3) This course will introduce the fundamental concepts used in the design of Phase IV clinical trials and statistical methodology associated with trial data analysis.

CPH 612 Infectious Disease Epidemiology (3) The theory/concepts of infectious diseases epidemiology, such as epidemic modeling expostulated through a systematic study of the more recent emerging diseased.

CPH 616 Cardiovascular Epidemiology (3) This course is designed to study and evaluate the broad array of epidemiologic studies on cardiovascular disease and the impact on prevention policy.

CPH 618 Epidemiology of Aging (3) This course introduces the application of epidemiologic methods to the study of older persons.

CPH 631 Design and Analysis of Health Surveys (3) Students will learn design and analysis issues associated with well-known national health surveys, including reliability and validity of measurements, instrument validation, sampling designs, weighing of responses, and multiple imputations. Students will learn how to use statistical software to analyze data from complex survey designs.

CPH 632 Mixed Models in Public Health (3) Students will learn statistical techniques for analyzing those longitudinal studies in public health that involve repeated measures and random effects. This course will cover multilevel regression models, Poisson regression models, logistic Models with random effects, crossover experiments, and nonlinear pharmacokinetic models.

CPH 636 Data Mining (3) This course concerns statistical techniques for and practical issues associated with the exploration of large public health data sets, the development of models from such data sets, and the effective communication of one's findings.

CPH 647 Research Methods (3) This course provides the student with basic knowledge about the design and analysis of research in the field of health behavior. The theory, design, applications, and analytic strategies used for various types of research are presented in a sequential format. Goals of the course include: 1) gaining the ability to critically evaluate research in health behavior 2) achieving competence in research methodology, and 3) understanding the conceptual application of analytic techniques to data.

CPH 711 Chronic Disease Epidemiology (3) A survey course on the leading chronic diseases in the U.S., including cardiovascular disease, cancer and diabetes with focus on surveillance and risk factors.

CPH 718 Molecular Epidemiology (3) Principles of molecular epidemiology, cancer prevention and control. This course serves as a Special Topics Elective in the College of Public Health and is designed primarily for graduate public

health students with professional interests in molecular epidemiology as this topic relates to cancer prevention and control. This course also is appropriate for students in other related health professions (i.e., medicine, nursing, pharmacy) and the biological sciences.

CPH 669 / BSC 731 Methods and Technologies in Clinical Translational Research (3) This course is an introductory graduate level course intended for students pursuing focused research training in clinical and translational science.

CPH 670 / BSC 732 Interdisciplinary Protocol Development (2) This graduate level course is intended for students pursuing focused research training in clinical and translational science to develop an understanding of and appreciation for the elements of leadership and teamwork in clinical and translational research.

CPH 671 / BSC 733 Seminar in Clinical and Translational Science (1) This seminar course is designed to orient students to clinical and translational research community and activities at the University of Kentucky and to incorporate a multidisciplinary cooperative approach to clinical and translational research. Students are expected to apply their knowledge of effective scientific communication, responsible conduct of research, and methods and technologies of clinical & translational science to ongoing discussions.

Mentored Research and Master's Thesis (Plan A)

CPH 779 Independent Studies in Public Health: Mentored Research (3) Designed for advanced students with research or special study interests in Public Health. Students are under guidance and confer individually with faculty.

CPH 778 Special Topics in Public Health: Thesis Research (3) This course will engage in reading, projects, lectures and/or discussions to address current topics of special interest or concern in public health.

31 total credit hours

The following competencies for the MS in Clinical and Translational Research are based on the core courses for the degree:

1. Utilize the basic terminology and definitions of epidemiology and biostatistics.
2. Calculate basic epidemiology measures.
3. Evaluate the strengths and limitations of epidemiologic reports.
4. Draw appropriate inferences from epidemiologic data.
5. Communicate epidemiologic information to lay and professional audiences.

6. Calculate tests and confidence intervals commonly encountered in univariate biostatistics including those based on t-tests, chi-square tests, and one-way and two-way analysis of variance.
7. Evaluate the strengths of limitations of basic designs used in biostatistics.
8. Interpret regression models including multivariate linear models, logistic models, and proportional hazards models.
9. Communicate biostatistics results to lay and professional audiences.
10. Demonstrate a familiarity with the public health system in this country.

Representative Programs of Study

Case 1: full time student without previous graduate certificate

Fall, Year 1:	CPH 605, STA 580, and Elective #1 (most likely CPH 665)
Spring, Year 1:	CPH 611, CPH 630, Elective #2
Fall, Year 1:	Elective #3, Elective # 4, CPH 778
Spring, Year 2:	CPH 779, CPH 701
Assumption:	all electives chosen are three credit hour courses

Case 2: part time student who completed Graduate Certificate in CPH

Fall, Year 1:	CPH 611
Spring, Year 2:	CPH 630
Fall, Year 2:	Elective # 3
Spring, Year 2:	Elective # 4
Fall, Year 3:	CPH 778
Spring, Year 3:	CPH 779, CPH 701

Case 3: part time student who completed the Graduate Certificate in Medicine

Fall, Year 1:	CPH 605
Spring Year 1:	CPH 611
Fall, Year 2:	CPH 630
Spring, Year 2:	Elective # 4
Fall, Year 3:	CPH 778
Spring, Year 3:	CPH 779, CPH 701

Evaluation of Program

Program success will be evaluated by the proportion of students attaining the following endpoints within one year of completing the MS degree: (1) acceptance of manuscript based on thesis research for publication in a refereed medical journal and (2) grant submissions. The latter includes one funded intramural grant to generate pilot data to support at least one extramural grant application. Other indicators of success will be

presentations at scientific meetings, with the goal being at least two presentations: one oral presentation at the local level and one poster presentation at the national level.

III. Resources

This proposed program will require no additional resources in terms of finance, faculty, or facilities. One additional course is being created in the College of Public Health to familiarize students with the public health system in this country. This will also be required by other proposed programs in the college that are not the MPH or DrPH degrees. Hence this new one credit hour course is not specific to this degree program request but rather responds to accreditation requirements that state that all students in the college should become familiar with public health on a broad level, even if they are not pursuing a MPH or DrPH degree. All other didactic courses are currently being taught (or, in the case of the revised Graduate Certificate Program in Translation Research, will be taught) with existing faculty. Because the anticipated enrollment in the new program is only 5-10 students per year there are enough seats in the core and elective courses within the College of Public Health to accommodate increased student enrollment due to the creation of this program. The new Center for Clinical and Translational Science will be identifying faculty to mentor independent studies and to direct the thesis research of program participants. The latter is key to the success of this MS degree program.

IV. Academic Program Approval Checklist

Note: this is a graduate program meaning most of the questions raised in this part of the application are not applicable (N/A).

01: Are more Kentuckians ready for postsecondary education?

A. Entrance requirements: all prospective students must be either MDs or graduate students completing an advanced degree (PhD) in another discipline.
B. Transfer requirements: N/A
C. Recruitment Plans: all recruitment for this program will be through the Center for Clinical and Translational Research.

02: Are more students enrolling?

A. Program demand: MDs and doctoral-level students who wish to conduct clinical translational research will need to obtain an advanced degree. Anticipated number of students is approximately seven per year.
B. Detailed recruiting plans: see 01.C above
C. Equity: this program will not discriminate on the grounds or race or gender.

03: Are more students advancing through the system?

A. Time to graduation: since most students will be taking this program on a part-time basis, and since the heart of the program is the mentored research and thesis research, we anticipate that it will take 3 years for a student to complete this program. A typical student will do the Certificate Program in year 1, the MS core courses and electives in year 2, mentored research in the first half of year 3 and thesis in the last half of year 3.
B. Practicum experience: this is the mentored research. Typically a student will work under close supervision of a faculty member on a research project that both mutually agree will lead to background and pilot data for a thesis and grant application.
C. Reason for offering the program: see abstract
D. Delivery. No plans are being made to offer this program over the Kentucky Virtual University. However, if a student wants to take a core course or an elective course over the Internet, then this will be allowed provided prior approval of the course is obtained from the program director.
E. Collaborative Efforts. There are no such plans at this point in time.

04. Are we preparing Kentuckians for life and work?

A. How does the program prepare Kentuckians for life and work? It provides the minimal credentials to assure reviewers of future research manuscripts and research proposals that a graduate of this program has had formal training in the new discipline of clinical translational research.
B. Accreditation expectations. No formal accreditation is needed for this program. However, a major part of the criteria for being awarded a competitive Clinical Translational Science Award by the National Center for Research Resources rests on establishing this MS degree program.
C. Are there licensure, certification, or accreditation requirements for graduates of this program? No.
D. Expected degree productivity: at least seven per year.

05. Are Kentucky's communities and economy benefiting?

A. External Advisory Groups: The Center for Clinical and Translational Research will have an External Advisory Committee which will review and offer advice on this degree program.
B. Employment expectations: This degree program is supplemental to the primary academic degree (MD, DDS, PharmD, PhD); it is designed to make these graduates more competitive for conducting clinical translational research. The latter is fast becoming a discipline unto itself.
C. Other benefits. This degree program is designed to increase the clinical research skills of our younger faculty and senior graduate students. It should be viewed as an integral part of the university's quest for top 20 status since to achieve that status the clinical research program at this university must improve.
D. Specific benefits. See above.

UNIVERSITY SENATE ROUTING LOG

Proposal Title: Program Change for RN-BSN Option in the Undergraduate Nursing Program

Contact Person (name, email & phone #): Patricia V. Burkhart (see below)

Instruction: To facilitate the processing of this proposal please identify the groups or individuals reviewing the proposal, identify a contact person for each entry, provide the consequences of the review (specifically, approval, rejection, no decision and vote outcome, if any) and please attach a copy of any report or memorandum developed with comments on this proposal.

Reviewed by: (Chairs, Directors, Faculty Groups, Faculty Councils, Committees, etc,)	**Contact person Name (phone/email)**	**Consequences of Review:**	**Date of Proposal Review**	**Review Summary Attached? (yes or no)**
Undergraduate Program Committee (UPC), College of Nursing	Dr. Karen Butler, Chair X-35684; kmbutl00@email.uky.edu	Approved minor revisions to description and objectives of NUR 869 course	UPC meeting 9/19/08	Minutes of 9/19/ 08 UPC meeting attached (highlighted).
Undergraduate Faculty, College of Nursing	Dr. Patricia Burkhart X-36253; Pvburk2@email.uky.edu	Approved minor revisions to description and objectives of NUR 869 course	Undergraduate Faculty Meeting 9/19/08	Minutes of 9/19/08 undergraduate faculty meeting attached
Associate Dean, Undergraduate Studies, College of Nursing	Dr. Patricia Burkhart X-36253; Pvburk2@email.uky.edu	Approved minor revisions to description and objectives of NUR 869 course	9/19/08	

UK
UNIVERSITY OF
KENTUCKY

College of Nursing
Office of Student Services
UK Medical Center
315 College of Nursing Building
Lexington, KY 40536-0232
859 323-5108
fax 859 323-1057
www.mc.uky.edu/nursing

October 21, 2008

TO: Dr. Heidi Anderson
Chair, Health Care Colleges Council

FR: Jane M. Kirschling, RN, DNS
Dean and Professor

Patricia V. Burkhart, PhD, RN
Associate Dean, Undergraduate Studies

RE: Program Change Request, BSN program

Attached are the forms that outline a program change in the Undergraduate Program which affects Registered Nurse (RN-BSN option) students. The recommendations we are requesting: a) change the admission criteria for associate degree prepared RN students, b) change the admission criteria for the RN who is a graduate of a diploma program, c) eliminate admission criteria which are not useful in making an admission decision, and d) change the wording of the Application Deadline and Application for Admission sections of the bulletin. These proposed changes formalize previous exemptions granted by the CON Admission and Progression Committee. The changes have been approved by the Undergraduate Program Committee, the Undergraduate Student Admission and Progression Committee, and the Undergraduate Faculty. A matrix with the current bulletin wording, the suggested changes, and the rationale for the changes is attached to the Request for Change in Undergraduate Program form.

Please let us know if you have questions. We are submitting this request in advance of the October 27th deadline for agenda items for the November 18th meeting. We will have representatives from the College of Nursing at the meeting to answer any questions.

Please let us know if you have questions. We look forward to comments from the review of the request at the Health Care Colleges Council.

seeblue.
An Equal Opportunity University

From: Joe Sottile [jsottile@engr.uky.edu]
Sent: Friday, April 24, 2009 2:18 PM
To: Brothers, Sheila C
Subject: Admissions and Academic Standards Cmte

Sheila,

The A&AS committee has approved the following proposals:

Change to Bachelor of Science in Nursing Admission Requirements With respect to the Change to Bachelor of Science in Nursing Admission Requirements, there was some concern expressed over the elimination of the reference letter from a supervisor and the interview with members of the Admission and Progression Committee. Several members of the committee believed that both are important for evaluating people working in the health care industry.

Please contact me if you need additional information.

- js

Joseph Sottile
234A MMRB
University of Kentucky
Lexington, KY 40506-0107
859-257-4616
859-323-1962 fax

1. General Information

College:	Nursing			Department:	Undergraduate Nursing		
Current Program Name:				*Proposed Program Name:*			
Current Major Name:	Nursing			*Proposed Major Name:*	*no change*		
Current Degree Title:	Bachelor of Science in Nursing			*Proposed Degree Title:*	*no change*		
Formal Option:				Specialty Field:			
Bulletin (yr and pgs):	2008-2009, pp. 231, 232	CIP Code:		UK ID #:		HEGIS CODE:	
Accrediting Agency (if applicable):				Today's Date:	10/21/08		

2. Particular University Studies Requirements or Recommendations for this Program.

	Current	*Proposed*
I. Mathematics		*no change*
II. Foreign Language		*no change*
III. Inference-Logic		*no change*
IV. Written Communication	ENG 104 or Honors	*no change*
V. Oral Communication	Suspended through Fall 2009	*Suspended through Fall 2009*
VI. Natural Sciences		*no change*
VII. Social Sciences		*no change*
VIII. Humanities		*no change*
IX. Cross-Cultural		*no change*
X. USP Electives (3 must be outside the student's major)		*no changes*

To the extent that proposed changes in sections 3 through 8 involve courses offered in another program, please submit correspondence with the program(s) pertaining to the availability of such courses to your students.

3. University Graduation Writing Requirement - select from approved courses.

4. College Depth & Breadth of Study Requirements (if applicable). Include particular courses required/recommended for this program.

Current	*Proposed*
	No change in this section

5. Premajor or Preprofessional Course Requirements (if applicable).

Current	*Proposed*
See attached	*See attached*

6. Credit Hours.

a. Credit Hours Required:	Current:		*Proposed:*	*no change*				
b. Total Required for Graduation:	Current:		*Proposed:*	*no change*				
c. Required by Level:								
Currently:	100:		200:		300:		400-500:	
Proposed:	*100:*		*200:*		*300:*		*400-500:*	

d. Current Premajor or Preprofessional:		*d. Proposed Premajor or Preprofessional:*	
e. Current Field of Concentration:		*e. Proposed Field of Concentration:*	
f. Current Division of Hrs between Major Subject & Related Field:		*f. Proposed Division of Hrs between Major Subject & Related Field:*	
g. Current Hrs Needed for a Specific Option or Specialization:		*g. Proposed Hrs Needed for a Specific Option/Specialization:*	
h. Current Technical or Professional Support Electives:		*h. Proposed Technical or Professional Support Electives:*	
i. Current Minimum Hours of Free or Supportive Electives:		*i. Proposed Minimum Hours of Free or Supportive Electives:*	

7. Major or Professional Course Requirements.

Current	*Proposed*
	no changes

8. Minor Requirements (if applicable).

Current	*Proposed*
	no changes

9. Rationale for Change(s) – if rationale involves accreditation requirements, please include specific references to those.

Please see attached matrix

REQUEST FOR CHANGE IN UNDERGRADUATE PROGRAM

12.	**Requested effective date for changes (term/year):**	**Spring**	/	**2008**		
13.	**Within the department, who should be contacted for further information about the proposed program change?**					
	Name:	**Gina Lowry, PhD, RN**	**Phone:**	**257-5258**	**Email:**	**rlowr0@uky.edu**

14. Signatures of Approval.

9/19/08	PATRICIA V. BURKHART	Patricia V Burkhart	10/28/08
DATE of Approval by Department Faculty – Curriculum Committee	printed name	Reported by Department Chair	signature
9/19/08	JANE M. KIESCHNING	Jane M Kieschning /PVB	10/28/08
DATE of Approval by College Faculty – UNDERGRAD	printed name	Reported by College Dean	signature
1-20-2009		Sharon Gill /	Digitally signed by Sharon Gill DN: cn=Sharon Gill, o, ou=Undergraduate Education, email=sgill@uky.edu, c=US Date: 2009.03.03 13:05:22 -05'00'
*DATE of Approval by Undergraduate Council	printed name	Reported by Undergraduate Council Chair	signature
		/	
*DATE of Approval by Graduate Council	printed name	Reported by Graduate Council Chair	signature
11/18/08	Heidi Anderson	/ Heidi M Anderson	
*DATE of Approval by Health Care Colleges Council (HCCC)	printed name	Reported by Health Care Colleges Council Chair	signature
*DATE of Approval by Senate Council		Reported by Office of the Senate Council	
*DATE of Approval by the University Senate		Reported by the Office of the Senate Council	

*If applicable, as provided by the *University Senate Rules*.

Rev 7/08

Program Change Addendum

SECTIONS OF THE UK BULLETIN RELATED TO RN-BSN TO BE REVISED

4. **A student who is a registered nurse** will be considered for admission to **upper division** courses in the UK Professional Nursing program based on the following criteria:

CURRENT WORDING	NEW WORDING – changes marked in red, bold, and underlined	RATIONALE FOR CHANGE
a) the applicant must be a registered nurse licensed to practice in Kentucky;		Deleted in its entirety; see changes to b), which becomes the new a)
b) an associate degree in nursing from an college accredited by one of the six regional academic accrediting associations with a minimum GPA of 2.5 on a scale of 4.0 in all course work attempted as computed by the Office of Admissions* **NOTE:** The following information concerning nursing credits was under review at the time of publication. Please check with the College of Nursing for the current policy. *The registered nurse who is a graduate of a diploma program will be considered for admission after earning a minimum of 60 college credits which include: English – 6 semester credits Natural Sciences – 6 semester credits Social Sciences – 6 semester credits Humanities – 6 semester credits Nursing** – 28 semester credits. **Nursing credits may be earned from regionally accredited	**a (1) For Associate Degree Nurses** The registered nurse with an associate degree in nursing from a college accredited by one of the six regional academic accrediting associations will be considered for admission with a minimum GPA of 2.5 on a scale of 4.0 in all course work attempted as computed by the Office of Admissions. **NOTE: RN licensure is required ~~to progress to the second semester of the curriculum or~~ prior to beginning clinical experiences.** **a(2) For Diploma Prepared Nurses** The registered nurse who is a graduate of a diploma program will be considered for admission after earning a minimum of 60 college credits which include: English – 6 semester credits Natural Sciences – 6 semester credits Social Sciences – 6 semester credits Humanities – 6 semester credits Nursing** – 28 semester credits. ****Nursing credits may be earned from regionally accredited colleges by taking the courses or by submission of a portfolio of RN licensure and experience to the RN-BSN Option Coordinator.** All nursing courses taken in associate degree or diploma programs	a (1). The Kentucky Board of Nursing policy that a graduate nurse must complete 120 clinical hours prior to licensure may preclude licensure for new associate degree graduates at the time of their application to the UK CON program. With the new wording, students are required to be licensed to progress, but are not required to be licensed prior to enrollment in the program. a (2). ACT-PEP requirement deleted. These specific tests are no longer in existence, and few colleges currently require testing beyond licensure for diploma prepared nurses.

Sentence from 'a.1' in its entirety:
NOTE: RN licensure is required prior to beginning clinical experiences."

colleges by taking the courses or by taking the ACT-PEP tests. It is strongly recommended that applicants contact the Office of Student Services in the College of Nursing regarding the approved nursing ACT-PEP credits. All nursing courses taken in associate degree or diploma programs are considered lower-division courses and are not equivalent to upper-division courses in this program. The applicant must have at least a GPA of 2.5 on a scale of 4.0 in all college course work attempted as computed by the Office of Admissions, and must have satisfactorily completed the ACT-PEP tests which establish the nursing credits.	are considered lower-division courses and are not equivalent to upper-division courses in this program. The applicant must have at least a GPA of 2.5 on a scale of 4.0 in all college course work attempted as computed by the Office of Admissions	
c) a statement of academic and professional goals;	**b) a statement of academic and professional goals;**	The statement of goals is useful for advising students in the RN-BSN Option and will be maintained, but is changed to b).
d) a letter of reference from a supervisor;	[no change]	~~Deleted in its entirety. Letters of recommendation provide minimal useful information about applicants.~~
e) an interview with members of the Admission and Progression Committee or their designees.		Deleted in its entirety. Current practice does not include interviewing applicants for admission. Interviewing of undergraduate students has proven to tell us little about the student.

CURRENT WORDING	NEW WORDING	RATIONALE FOR CHANGE
Application Deadline The application deadline for admission to the Nursing program for all categories of students is March 1.	**Application Deadline** **The preferred application deadline is March 1; however, applicants will be considered on a space available basis until August 1 for the fall semester. For spring semester, applications must be received by December 1.**	Adding wording to make it clear that the March 1 deadline is NOT a final admission cut off and setting a deadline for fall and spring applications which coincides with the University's admission deadlines.
Application for Admission All applications and transcripts for admission must be submitted to the Office of Admissions according to the deadlines listed in the box above. RN applicants are considered for fall admission only. Transfer applicants will be evaluated for fall and spring admission, according to the deadlines listed. Those accepted for admission must notify the college within 30 days, in writing, of their intent to enroll. Late applicants will be considered for admission on a space-available basis.	**Application for Admission** All applications and transcripts for admission must be submitted to the Office of Admissions according to the deadlines listed in the box above. Transfer applicants will be evaluated for fall and spring admission, according to the deadlines listed. Those accepted for admission must notify the college within 30 days, in writing, of their intent to enroll. Late applicants will be considered for admission on a space-available basis.	Deleting sentence "RN applicants are considered for fall admission only". RN students are, by default, transfer applicants – so the paragraph is confusing.

4.2.2.1 Admission to College of Nursing [US:4/12/82; US:3/10/86; US:10/14/91; US: 2/13/95; US 4/10/00]
The College of Nursing (CON) enrollment will be composed of four-year students, associate degree nursing graduates and diploma nursing school graduates. Admission to the University does not guarantee admission to the College of Nursing. Preference will be given to Kentucky residents.

Applicants must be in a state of good health enabling them to carry out the functions of the professional nurse. Routinely, each student will be required to obtain a rubella and rubeola titers, and have an annual tuberculin test or chest x-ray.

Progression to upper division courses is regulated so that the total number of full time equivalents at the beginning of the junior year does not exceed 120. Admission criteria for four types of students are presented below:

A. Criteria for Admission to the 4-year BSN Program Include: [US 4/13/98; US 4/10/06]

1. Freshman Student
Students will be admitted as freshman to a prenursing curriculum based on the following criteria:

(a) high school grade point average of 2.5 or above on a 4.0 scale

(b) meeting criteria for selective admission to the University of Kentucky as established by Rule 4.2.1.1

2. Selection for admission to the nursing curriculum will occur at the sophomore level for all students based on the following criteria:

(a) a minimum cumulative grade point average of 2.5;

(b) a grade of "C" or better in all required prenursing courses;

(c) completion of an approved Medicaid Nurse Aid training program.

In addition, any or all of the following information may be evaluated as part of the admission application:

(d) a writing exercise based on criteria established by the CON;

(e) two letters of reference from individuals who can assess potential for success (e.g. teacher, employer);

(f) an interview with members of the Admissions and Progression Committee, or their designees.

B. Criteria for Admission to the 4-year BSN Program for Transfer Students Include: [US: 4/13/98; US 4/10/00; US 4/10/06]

1. for transfer students with less than 24 hours of college credit, meeting the criteria for entering freshman and a minimum grade point average of 2.5 on all college work attempted as computed by the Office of Admissions;

2. for transfer students with more than 24 hours of college credit, maintaining a grade point average of 2.5 on all college work attempted as computed by the Office of Admissions;

3. grades of "C" or better in all courses required for CON curriculum;

In addition, any or all of the following may be requested as part of the application:

4. a writing exercise based on criteria established by the CON;

5. two letters of reference from individuals who can assess potential for success (e.g., teacher, employer, etc.); and

6. completion of an approved Medicaid Nurse Aid training program;

7. an interview with members of the Admission and Progression Committee or their designee.

C. Students will be eligible to apply for readmission the College of Nursing after suspension from the College when they meet criteria as stated in Section B 1 and 2 of this policy.

D. A student who is a registered nurse will be considered for admission to upper division courses in the nursing program based on the following criteria:

~~**1.** The applicant must be a registered nurse licensed to practice in Kentucky;~~

~~**2.** an Associate Degree in Nursing from a college accredited by one of the six regional academic accrediting associations with a minimum GPA of 2.5 on a scale of 4.0 on all course work attempted as computed by the Office of Admissions.*~~

(a) For Associate Degree Nurses
The registered nurse with an associate degree in nursing from a college accredited by one of the six regional academic accrediting associations will be considered for admission with a minimum GPA of 2.5 on a scale of 4.0 in all course work attempted as computed by the Office of Admissions. NOTE: RN licensure is required ~~to progress to the second semester of the curriculum or~~ prior to beginning clinical experiences.
(b) For Diploma Prepared Nurses
The registered nurse who is a graduate of a diploma program will be considered for admission after earning a minimum of 60 college credits which include:
English – 6 semester credits
Natural Sciences – 6 semester credits
Social Sciences – 6 semester credits
Humanities – 6 semester credits
Nursing** – 28 semester credits.
**Nursing credits may be earned from regionally accredited colleges by taking the courses or by submission of a portfolio of RN licensure and experience to the RN-BSN Option Coordinator.

All nursing courses taken in associate degree or diploma programs

Complete sentence of 4.2.2.1.D.a, NOTE:
"NOTE: RN licensure is required prior to beginning clinical experiences."

are considered lower-division courses and are not equivalent to upper-division courses in this program. The applicant must have at least a GPA of 2.5 on a scale of 4.0 in all college course work attempted as computed by the Office of Admissions

~~3.~~ 2. a statement of academic and professional goals;

~~4. a letter of reference from a supervisor;~~ 3. a letter of reference from a supervisor.

~~5. an interview with members of the Admission and Progression Committee or their designee.~~

~~*The registered nurse who is a graduate of a diploma program will be considered for admission after earning a minimum of 60 college credits which include:~~

~~English~~	~~6 semester credits~~
~~Natural Sciences~~	~~6 semester credits~~
~~Social Sciences~~	~~6 semester credits~~
~~Humanities~~	~~6 semester credits~~
~~Nursing°~~	~~28 semester credits~~

~~°Nursing credits may be earned from regionally accredited colleges by taking the courses or by taking the ACT-PEP tests. It is strongly recommended that applicants contact the Office of Student Services in the College of Nursing regarding the approved nursing ACT-PEP credits. All nursing courses taken in associate degree or diploma programs are considered lower division courses and are not equivalent to upper division courses in this program. The applicant must have at least a GPA of 2.5 on a scale of 4.0 on all college course work attempted as computed by the Office of Admissions, and must have satisfactorily completed the ACT-PEP tests which establish the nursing credits.~~

~~The application deadline for admission to the Nursing program for all categories of student is March 1st. [SC: 4/24/95; US 4/10/00; SC: 10/30/06]~~
The preferred application deadline is March 1; however, applicants will be considered on a space available basis until August 1 for the fall semester. For spring semester, applications must be received by December 1.

REQUEST FOR CHANGE IN UNDERGRADUATE PROGRAM

1. General Information

College: CCIS

Department: Journalism and Telecommunications

Current Program Name: Telecommunications

Proposed Program Name:

Current Major Name: Telecommunications

Proposed Major Name:

Current Degree Title: Bachelor of Arts/ Bachelor of Science in Telecommunications

Proposed Degree Title:

Formal Option:

Specialty Field:

Ofc of Sen Cncl Note

Changes to required GPA for pre-major courses requires review by the Senate's Admissions and Academic Standards Committee (highlighted, page 2)

Bulletin (yr and pgs):

CIP Code:

UK ID #:

HEGIS CODE:

Accrediting Agency (if applicable): Accrediting Council for Education in Journalism and Mass Communications

Today's Date: 11/16/08

2. Particular University Studies Requirements or Recommendations for this Program.

	Current	*Proposed*
I. Mathematics		
II. Foreign Language		
III. Inference-Logic		
IV. Written Communication	ENG 104 or Honors	
V. Oral Communication	Suspended through Fall 2009	*Suspended through Fall 2009*
VI. Natural Sciences		
VII. Social Sciences		
VIII. Humanities		
IX. Cross-Cultural		
X. USP Electives (3 must be outside the student's major)		

To the extent that proposed changes in sections 3 through 8 involve courses offered in another program, please submit correspondence with the program(s) pertaining to the availability of such courses to your students.

3. University Graduation Writing Requirement - select from approved courses.

4. College Depth & Breadth of Study Requirements (if applicable). Include particular courses required/recommended for this program.

Current	*Proposed*
For the B.A.: 4th semester of a language, or 2 semesters of linguistics STA 200, 291 or 370	
For the B.S.: 9 credits in mathematics and/or computer sciences beyond the University Studies requirement. At least 3 credits must be in statistics.	

Complete a minimum of 60 hours of science courses, with not more than 12 hours within the College of Communications and Information Studies. These hours must be approved by an advisor in CCIS.

5. Premajor or Preprofessional Course Requirements (if applicable).

Current	*Proposed*
TEL 101	*TEL 101*
TEL 201	*TEL 201*
CS 101	*STA 200 or 291*
STA 200 or 291	*Combined GPA of 2.6 from three courses above*
Combined GPA of 3.0 from four courses above	

6. Credit Hours.

a. Credit Hours Required: Current: 54 *Proposed: 51*

b. Total Required for Graduation: Current: 120 *Proposed:*

c. Required by Level:

	100:	200:	300:	400-500:
Currently:	6	6	42	
Proposed:	*3*	*6*	*42*	

d. Current Premajor or Preprofessional:	12	*d. Proposed Premajor or Preprofessional:*	*9*
e. Current Field of Concentration:	15	*e. Proposed Field of Concentration:*	*12*
f. Current Division of Hrs between Major Subject & Related Field:		*f. Proposed Division of Hrs between Major Subject & Related Field:*	
g. Current Hrs Needed for a Specific Option or Specialization:		*g. Proposed Hrs Needed for a Specific Option/Specialization:*	
h. Current Technical or Professional Support Electives:		*h. Proposed Technical or Professional Support Electives:*	
i. Current Minimum Hours of Free or Supportive Electives:	18	*i. Proposed Minimum Hours of Free or Supportive Electives:*	*21*

7. Major or Professional Course Requirements.

Current	*Proposed*
TEL 300	TEL 300
TEL 310	TEL 310
JAT 399	JAT 399
65 Hours of Liberal Arts courses (required by accrediting body)	65 Hours of Liberal Arts Courses (required by accrediting body)
Minimum 9 hours from among TEL 319 World Media Systems, TEL 355 Communication and Information Systems in Organizations, TEL 390 Special Topics in Telecommunications Production (subtitle required), JAT 395 Independent Study, TEL 420 Electronic Media Criticism, TEL 453 Mass Communication and Social Issues, TEL 482 Electronic Media Sales Management, TEL 504 Media Organizations, TEL 510 Media Economics, TEL 520 Social Effects of the Mass Media, TEL 525 Theory of Multimedia, TEL 530 Proseminar in Telecommunications,	Minimum 6 hours from among TEL 319 World Media Systems, JAT 395 Independent Study, TEL 420 Electronic Media Criticism, TEL 453 Mass Communication and Social Issues, TEL 520 Social Effects of the Mass Media, TEL 525 Theory of Multimedia, TEL 530 Proseminar in Telecommunications, TEL 555 The Internet and Social Change, TEL 590 Special Topics in Social-Cultural Media Studies (subtitle required)

TEL 555 Cyberspace and Communication, TEL 590 Special Topics in Media Studies (subtitle required)	Minimum 3 hours from among TEL 355 Communication and Information Systems in Organizations, TEL 404 Media Organizations, TEL 482 Electronic Media Sales Management, TEL 490 Special Topics in Media Industry Studies (subtitle required), TEL 535 Telecommunications Network Management

8. Minor Requirements (if applicable).

Current	*Proposed*

9. Rationale for Change(s) – if rationale involves accreditation requirements, please include specific references to those.

The changes in the requirements for a major in Telecommunications amount to 1) dropping the requirement for CS101 in the premajor and adjusting the required GPA for entrance into the major, 2) expanding the required hours of Telecommunications courses at the 300+ level from 27 to 30 while concurrently reducing the required hours for the area of concentration from 15 to 12, and 3) requiring that 6 hours of electives be taken from courses with a focus on social and/or cultural studies of media and 3 hours from coursework that emphasizes management of telecommunications organizations. The first change reflects the recognition that for the great majority of Telecommunications students CS101 is remedial. Most of our students come to us with significant computer skills, and those that do not can be advised to take CS101. Requiring all of our students to take the course is not a good use of their time and money at UK. Because our students usually get A's or B's in CS101, we needed to revise the required GPA necessary to be accepted into the Telecommunications (3.0 based on grades from TEL 101, TEL 201, STA 200 or STA 291 and CIS 101) downward to 2.6 based on TEL 101, TEL 201 and STA 200 or 291. The educational goal of the Telecommunications program is to provide students with a balance among production skills, management understanding and knowledge of the social effects of telecommunications in society. A review of class selection among Telecommunications students identified cases of inadequate study in the social effects of telecommunications as well as occasional lack of industry expertise. As an increasing number of courses focusing on telecommunications industries have been made available, several students have taken management-oriented courses exclusively to meet the requirement for 9 hourse of conceptual work. The new program will require a minimum level of coursework focusing on the social impact of telecommunications (6 credits) as well as exposure to the study of telecommunications organizations from a management perspective (3 credits). A significant amount of flexibility remains for students to emphasize management of telecommunications media, to expand their production skills, or to study electronic media from social and/or cultural perspectives. Changes in the rules of our accrediting body (the Accrediting Council on Education in Journalism and Mass Communications) instituted a few years ago, allow us to expand the total number of credit hours our students can take within the School of Journalism and Telecommunications from 30 to 40, accommodating this change.

12. **Requested effective date for changes (term/year):** Fall / 2009

13. **Within the department, who should be contacted for further information about the proposed program change?**

Name: Dr. Thomas Lindlof **Phone:** 257-4242 **Email:** lindlof@uky.edu

14. Signatures of Approval.

12/1/08	Beth E. Barnes	/	
DATE of Approval by Department Faculty	printed name	Reported by Department Chair	signature
1/12/09	J. David Johnson	/	
DATE of Approval by College Faculty	printed name	Reported by College Dean	signature
3/3/09	S Gill	/	
*DATE of Approval by Undergraduate Council	printed name	Reported by Undergraduate Council Chair	signature
		/	
*DATE of Approval by Graduate Council	printed name	Reported by Graduate Council Chair	signature
		/	
*DATE of Approval by Health Care Colleges Council (HCCC)	printed name	Reported by Health Care Colleges Council Chair	signature
*DATE of Approval by Senate Council		Reported by Office of the Senate Council	
*DATE of Approval by the University Senate		Reported by the Office of the Senate Council	

*If applicable, as provided by the *University Senate Rules*.

Rev 7/08

From: Joe Sottile [jsottile@engr.uky.edu]
Sent: Friday, April 24, 2009 2:18 PM
To: Brothers, Sheila C
Subject: Admissions and Academic Standards Cmte

Sheila,

The A&AS committee has approved the following proposals:

BA/BS Telecommunications: Change to Premajor GPA Requirement

Please contact me if you need additional information.

- js

Joseph Sottile
234A MMRB
University of Kentucky
Lexington, KY 40506-0107
859-257-4616
859-323-1962 fax

UNIVERSITY SENATE REVIEW AND CONSULTATION SUMMARY SHEET

Proposal Title: **Certificate in Maternal and Child Health**

Proposal Contact: Dr. James Cecil, Department of Health Behavior
College of Public Health
121 Washington Avenue, Room 109
CAMPUS 0003
Phone: 323-6400
Email: jimc@email.uky.edu

Becki Flanagan, Academic Affairs
218-2092 **becki@uky.edu**

Instruction: To facilitate the processing of this proposal please identify the groups or individuals reviewing the proposal, identify a contact person for each entry, provide the consequences of the review (specifically, approval, rejection, no decision and vote outcome, if any) and please attach a copy of any report or memorandum developed with comments on this proposal.

Reviewed By	Contact person	Consequences of Review	Date of Proposal Review	Review Summary Attached?
Academic Affairs Committee	Marta Mendiondo, Chair	Approved	6/17/08	Yes
Faculty Council	Glyn Caldwell, Chair	Approved	7/26/08	Yes
Office of Academic Affairs	Linda Alexander, Associate Dean	Approved	8/28/08	Yes

Graduate Council	Approved	4/17/09
Senate's Academic Programs Committee	Approved	4/24/09

UNIVERSITY OF KENTUCKY

Dream · Challenge · Succeed

COLLEGE OF PUBLIC HEALTH

M E M O R A N D U M

TO: **Health Care Colleges Council**

FROM: **Linda A. Alexander, EdD**
Associate Dean for Academic Affairs

SUBJECT: **New Certificate Proposal – Maternal and Child Health**

DATE: **August 29, 2008**

It is the intention of the College of Public Health to begin offering a new graduate certificate in Maternal and Child Health.

The need for this certificate was first explored in 2005, when Dean Steve Wyatt created an Ad Hoc MCH Advisory Committee to determine the interest and value of a certificate in MCH. A survey was conducted of 200 Kentucky public health workers who considered themselves to be MCH health care providers. Ninety-eight percent of the respondents indicated a general need for MCH training in the Commonwealth's workforce. The same survey indicated that not all workers would desire to work toward a graduate degree in public health, but many would be interested in enhancing their credentials in MCH without striving to achieve a terminal degree.

The Graduate Certificate in Maternal and Child Health provides a mechanism for public health workers and students admitted to the graduate school to enhance their competencies and skills in Maternal and Child Health without undertaking a graduate degree in MCH. The certificate will be accessible to students enrolled in the Graduate School and the College of Public Health and will be valuable to the public health workforce throughout the Commonwealth of Kentucky. This proposal for a 15-credit hour graduate certificate is intended to enhance the training opportunities for students and public health workers with an interest in maternal and child health.

After the full proposal was completed, it was reviewed and approved by the Academic Affairs Committee and the Faculty Council, according to our college's established bylaws.

Further information about this course can be obtained by contacting the program's proposed director, Dr. James Cecil, at 323-6400 or via email at jimc@email.uky.edu.

Office of the Dean
121 Washington Ave., Suite 112 · Lexington Kentucky 40536-0003
(859) 218-2247 · *fax* (859) 323-5698
www.mc.uky.edu/PublicHealth
An Equal Opportunity University

TO: Linda Alexander
Associate Dean for Academic Affairs

CC: Marta Mendiondo
Chair, Academic Affairs Committee

CC: James C. Cecil, III

FROM: Glyn G. Caldwell
Chair, Faculty Council

DATE: June 26, 2008

SUBJECT: Approval of the Graduate Certificate Program in Maternal and Child Health

On June 26, 2008, the Faculty Council of the College of Public Health unanimously approved the Graduate Certificate Program in Maternal and Child Health with one correction, one concern, and one recommendation.

The correction is in item 2f of the Application for New Course. The Council felt that the answer should be "No" and the 3 credit hours omitted. The rationale is that there is no reason for students to repeat the course because the content will remain the same from semester to semester.

The concern is that it would be possible for an MPH student concentrating in Health Behavior to automatically satisfy the requirements for the certificate by choosing the certificate electives to coincide with the MPH electives.

The recommendation is that on page 2, Curriculum. The sentence be changed as follows: The Graduate Certificate consists of 15 credit hours, 6 of which are required courses and 9 of which can be selected from the list of electives below, ***or other existing classes or classes to be developed as approved by the certificate director.***

UNIVERSITY OF KENTUCKY

Dream • Challenge • Succeed

COLLEGE OF PUBLIC HEALTH

MEMORANDUM

TO: Dr. James Cecil
Director, MCH Certificate Program

FROM: Dr. Stephen W. Wyatt
Dean

DATE: May 8, 2008

SUBJECT: MCH Graduate Certificate

I am pleased to document the commitment of the State (KDPH) and UK College of Public Health to the development and delivery of the MCH certificate program. The resources received from KDPH will be utilized to support a (1) 20% time commitment for you as Director, (2) a part-time administrative assistant, (3) salary support for faculty who develop and/or teach courses, and (4) certificate related travel.

Office of the Dean
121 Washington Ave., Suite 112 • Lexington, Kentucky 40536-0003
(859) 257-5678 ext. 82247 • *fax* (859) 323-5698
www.mc.uky.edu/PublicHealth
An Equal Opportunity University

University of Kentucky

College of Public Health

May 15, 2008

Proposal for a Graduate Certificate in Maternal and Child Health

Purpose and Background:

Maternal and Child Health (MCH) issues are among the most prevalent in the Commonwealth of Kentucky. The University of Kentucky President, Dr. Lee Todd, often refers to the "Kentucky Uglies" which are those attributes that are addressable with current technology and knowledge but make Kentucky less than it could be if those attributes did not exist. Among the "Kentucky Uglies" related to public health and MCH are high rates of premature births (KY=15.2%; USA=12.7%), increased rates of infant mortality (KY is ranked #17 in the U.S.), domestic violence at very high rates, and a myriad of preventable diseases and conditions that could better be addressed by public health workers who had appropriate MCH training. Possessing the requisite credentials is important, but those workers need to be motivated by a desire to improve and enhance the health status of children, mothers and families in Kentucky. Although MCH courses are available and are being taught at the College of Public Health (CPH) and the University of Kentucky, there is no systematic mechanism that focuses on MCH issues and skills. This certificate is designed to focus on this important aspect through a sequence of courses and experiences exclusively dedicated to MCH. Dean Steve Wyatt supports the creation of a Graduate Certificate in Maternal and Child Health at the College of Public Health. This Certificate may lead to the creation of an MPH concentration in MCH in the future.

The Graduate Certificate in Maternal and Child Health provides a mechanism for public health workers and students admitted to the graduate school to enhance their competencies and skills in Maternal and Child Health without undertaking a graduate degree in MCH. The certificate will be accessible to students enrolled in the Graduate School and the College of Public Health and will be valuable to the public health workforce throughout the Commonwealth of Kentucky.

This proposal for a 15-credit hour graduate certificate is intended to enhance the training opportunities for students and public health workers with an interest in maternal and child health. The need for this certificate was explored in 2005, when Dean Steve Wyatt created an Ad Hoc MCH Advisory Committee to determine the interest and value of a certificate in MCH. A survey of 200 public health workers, who considered themselves to be MCH workers in Kentucky, was conducted. Ninety-eight percent of the respondents indicated a general need for MCH training in the Commonwealth's workforce. The same survey indicated that not all workers would desire to work toward a graduate degree in public health but many would be interested in enhancing their credentials in MCH without striving to achieve a terminal degree.

Graduate Certificate Director:

Full member of Graduate Faculty (James C. Cecil, III DMD, MPH – subject to appointment by the Dean of the Graduate School). Dr. Cecil is a part-time CPH faculty with clinical and academic experience in maternal and child health issues. As faculty at the College of Dentistry and former Kentucky State Dental Director, he developed a course in Children's Oral Health for health department nurses in Kentucky called "KIDS Smile" which has been used in several other state programs. As state dental director, Dr. Cecil worked closely with the MCH program at the Kentucky Department for Public Health.

Graduate Certificate Associates: Dr. Henrietta Bada, pediatrician, neonatologist and faculty at the College of Medicine; Dr. Ken Muse, obstetrician and faculty at the College of Medicine; Dr. Linda Alexander, faculty College of Public Health.

Graduate Certificate in Maternal and Child Health

Objectives:

Prepare public health workers to address the multi-factorial MCH issues in Kentucky in their workplaces by enhancing public health-related skills.

Provide students with theoretical, practical, and relevant educational experiences in MCH to enhance the health and welfare of children, mothers and families.

Provide students with the knowledge and skills to develop, implement and manage MCH programs, prepare budgets, and evaluate the effectiveness of MCH programs.

Curriculum:

The Graduate Certificate consists of 15 credit hours, 6 of which are required courses and 9 of which can be selected from the list of electives below, or other existing classes or classes to be developed as approved by the certificate director.

Required Courses:

CPH 740 – Introduction to Maternal and Child Health (3 hrs). (A new course proposal is included in this Graduate Certificate proposal)

CPH 605 – Introduction to Epidemiology (3 hrs).

Selective Courses in Existence Throughout the University:

CPH 645 – Food Systems and Malnutrition and Public Health (3 hrs). "This course explores key issues in public health and malnutrition through a food systems perspective. Understanding how the various parts of the food system interact is essential in the design of effective public health policy and projects to combat

malnutrition in all its various forms. … we will look at public health nutrition challenges throughout the food system, both in the US and in the developing world."

CPH 648 – Health and Culture (3 hrs). "Health educators involved in advocacy, policy, or promotion should be trained to understand differences in minority populations in order to help build and lobby for the infrastructure needed to prevent excess disease and death among underserved populations. A special emphasis…will be placed on understanding the role of culture in influencing the adaptation of health attitudes, practices and behaviors. An additional focus will be placed on health status, current trends, and health indicators for special populations identified through the Kentucky Health Objectives …, as reported by the Kentucky Department for Public Health."

CPH 646 – Special Topics in Behavioral Health: Public Health and Anthropology (3 hrs). "This seminar explores the contributions that anthropology, the academic field that focuses on the study of human culture, can make towards a better understanding of health behavior in the context of public health…. We will consider how the perspectives and tools developed in anthropology can be utilized in public health to help understand culture, both in the United States and in developing countries." This course has a module on MCH which includes topics such as preventive child services, learning from caregivers of young children, children and medicines, care-seeking for illness in young infants in an urban slum in India, and midwifery, home births, and emergency obstetric referrals in Guatemala.

NUR 658 – Risky Behaviors and Health (3 hrs). "This course examines the epidemiological, psychological, and theoretical perspectives of risk taking behavior and its health consequences across the lifespan. Selected topics include stress, tobacco, drug, alcohol, and medication abuse, unplanned pregnancy, sexually transmitted diseases, eating disorders, occupational and sports activities, and violence across the lifespan."

FAM 502 – Families and Children Under Stress (3 hrs). "An investigation of the stressors and crises experienced by families and the examination of family members' adaptation and coping efforts. Special attention is given to prevention, management, and enrichment strategies. Implications for practitioners will be drawn from conceptual frameworks and recent research."

CPH 647 – Research Methods for Health Promotion (3 hrs). "This course provides the student with basic knowledge about the design and analysis of research in the field of health promotion. The theory, design applications, and analytic strategies used for various types of research are presented in a sequential format. Goals of the course include: 1) gaining the ability to critically evaluate research in health promotion practice, 2) achieving competence in research methodology, and 3) understanding the conceptual application of analytic techniques to data."

CPH 758 – Special Topics in Health Services Management: Health Care Access and Coverage (3 hrs). "This is a selective policy course offered to give students a greater

understanding of programs available to serve underserved populations, how the changes in the health care market impact care provided to underserved populations, and policy and programmatic options to address the needs of underserved populations."

CPH 610 – Injury Epidemiology and Control (3 hrs). CPH 610 is a course that explores "The epidemiologic basis for understanding the distribution and determinants for injuries and poisonings, including both intentional and unintentional events. A wide variety of injury settings are discussed including home, transportation, occupational, recreational, plus violence, suicide, and homicide. The continuum of injury using pre-event, event and post-event concepts of Haddon's matrix is also emphasized."

CPH 758 (and FP 825) – International Public Health (and Introduction to Global Health & International Medicine) (3 hrs). "This course will acquaint students with the major issues and challenges for public health in a variety of wealthy, emerging and impoverished nations." CPH 758 has a module in Maternal and Child Health.

CPH 653 –Public Health Law and Policy (3 hrs). "CPH 653 is an introductory course for non-lawyers in selected aspects of the law related to public health. Major attention is paid to fundamental legal principles and legal reasoning, recurring legal issues confronted by public health agencies, and the use of law to advance a public health agenda. Emphasis is placed on giving students tools to use when they encounter law-related problems in their professional careers. The course is intended for students in all divisions of the College of Public Health." The course has a module on public health law ethics and practice as well as a module on statutory rights of vulnerable populations and reproductive health issues.

Selective Courses in Development:

Genetics and Public Health (3 hrs). Ms. Joyce Robl. "An introductory course that provide an overview of genetics and public health including basic genetic concepts, clinical genetics services, newborn screening, birth defects surveillance, potential technological advances in genetics as a result of the Human Genome Project as well as ethical, legal and social issues.

Reproductive Toxicology (3 hrs). Dr. Scott Prince. No description available.

Resources Available:

Funding to initiate this certificate program is available through a renewable block grant from the Kentucky Department for Public Health which will support the administration of the Graduate Certificate (i.e., Director at a 20% DOE). Dean Wyatt has provided an attached memo outlining that commitment.

CPH 740, (taught for the past three years as a special course in CPH), is taught by Dr. Henrietta Bada and Dr. Ken Muse who are full-time faculty of the College of Medicine. Funds are allocated from the state block grant to support the DOE portion of the course instructor's

time. It is expected that fewer than five students will be admitted to the Graduate Certificate in Maternal and Child Health during the first semester that it will be offered.

Admission Requirements and Application Procedures for Certificate in Maternal and Child Health (MCH):

Applicants must satisfy the minimum Graduate School Requirements for admission to a Certificate (which are identical to those for enrollment as post-baccalaureate graduate student) and apply separately for the Graduate Certificate in MCH. Post-baccalaureate status is not available to non-Kentucky residents or international applicants.

Students enrolled in (or applying to) a graduate degree program or post-baccalaureate graduate students may apply for the Graduate Certificate in MCH.

Applicants for admission to the Graduate Certificate in Maternal and Child Health must be approved by the Certificate Director, who shall notify the Graduate School in writing of the student's admission.

Admission to the Graduate Certificate in MCH curriculum **or** award of the graduate certificate does not guarantee admission to any degree program at the University of Kentucky.

Admission to the Graduate Certificate in MCH may be limited so that the faculty and resources are not overwhelmed.

Applicants must submit the appropriate application fee to the Graduate School.

Applicants must provide to the Graduate Certificate Director a two-page essay on why the individual needs and desires a Graduate Certificate in Maternal and Child Health and a one-page biography which includes the student's educational and work experience, as an aid to the admission decision.

Students enrolled in the Graduate Certificate may not use the MCH-required Certificate Course, CPH 778 – Special Topics in Health Behavior: Introduction to Maternal and Child Health for credit in any other degree program in the College of Public Health.

Graduate Certificate in Maternal and Child Health Requirements:

The Graduate Certificate curriculum involves a total of 15 graduate credit hours including 6 hours of required courses.

All course work for the Graduate Certificate in MCH must be completed within 5 years of admission.

Graduate Certificate students must maintain a GPA of 3.0 or better to progress in the curriculum.

Award of the Graduate Certificate in Maternal and Child Health:

When a student enrolled in the UK Graduate School has successfully completed the last required course and has satisfied the GPA and grade requirements, the Director shall send a completed, signed Graduate Certificate Completion Form to the Dean of the Graduate School verifying that the student has fulfilled all requirements for the Certificate and requesting award thereof. The Graduate School shall then issue the student's certificate and officially notify the University Registrar of the awarding of the Certificate for posting to the student's permanent transcript.

Benefits:

For Students:

Enhance job opportunities in MCH.

Provide the opportunity for public health workers to obtain formal training in MCH without pursuing a terminal degree an therefore provide a more competent MCH workforce.

For The College:

Provide recognition for ongoing efforts of both faculty and students in the area of Maternal and Child Health.

Build a pilot program that will be antecedent to the creation of a concentration in MCH.

For the University of Kentucky and the Commonwealth of Kentucky:

Provide appropriate relevant educational experiences in Maternal and Child Health to enhance the health and welfare of Kentucky's children, mothers, and families.

Provide career opportunities for public health workers as MCH competent colleagues in the public health system in Kentucky.

Strengthen UK's reputation as an institution that values and actively fosters high quality, relevant education and training that serves the multi-factorial needs of the Commonwealth.

Provide a pool of appropriately trained MCH professionals some of whom may pursue terminal degrees in MCH or other aspects of public health.

Enhance the reputation of UK throughout the state and nation as graduates begin practicing MCH as part of their public health practice.

From: Alexander, Linda A
Sent: Tuesday, April 21, 2009 10:39 AM
To: Brothers, Sheila C
Cc: Flanagan, Rebecca
Subject: FW: Grad Cert in Maternal and Child Health
Attachments: CNU 502 description 2009.doc

From: Cecil, Jim
Sent: Tuesday, April 21, 2009 10:24 AM
To: Alexander, Linda A
Subject: RE: Grad Cert in Maternal and Child Health

Linda:

NFS 516, Maternal and Child Health Nutrition, 3-credit hour course will be added to the Selective list for the Graduate Certificate in MCH on the approval of the NFS faculty. The course director is Dr. Janet Kurzynske who is waiting for the approval from her faculty before forwarding her syllabus. That vote should be quickly forthcoming.

CNU 502, Obesity: Cell to Community, 2-credit hour course is approved by Dr. Margaret Cook-Newell, course director, for inclusion in the Selective list for the Graduate Certificate in MCH. Course description from the syllabus that Dr. Cook-Newell forwarded to me: CNU 502
The emphasis of this course is on normal maternal and child nutrition. The connection between nutrition and the outcome of pregnancy will be closely studied. In addition, areas of specific nutritional need such as adolescent pregnancy, alcohol, tobacco, drug and caffeine use during pregnancy, lactation, infant feeding practices world-wide, educational needs of parents and maternal and child support systems are addressed. Attention may be paid to nutritional support to mothers and children at risk from AIDS, cancer, diabetes and other disease conditions.

I hope that the Senate could review the proposal with the added information that I have submitted in this email.

Best regards Linda and thanks so much for your help in getting this matter settled. Jim

Jim Cecil, DMD, MPH
Part-time faculty
University of Kentucky Colleges of Public Health and Dentistry
859-323-6400 (Dentistry)
859 218-2031 (Public Health)
jimc@email.uky.edu

- **October 15, 2009** — Thursday — Priority deadline for admission to the Winter Intersession
- **November 2 — November 25, 2009** — Monday through Wednesday, Priority registration for Winter Intersession
- **November 20, 2009** — Friday — Winter Intersession registration for newly-admitted students
- **December 18, 2009** — Friday — Deadline for admission to the Winter Intersession
- **December 18, 2009** — Friday — Last day a student may drop a course or cancel registration with the University Registrar for a full refund of fees
- **December 21, 2009** — Monday — First day of class
- **December 21, 2009** — Monday — Last day to add a class for the 2009-2010 Winter Intersession
- **December 21, 2009** — Monday — Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
- **December 24, 2009** — Thursday — Last day to officially withdraw from the University or reduce course load and receive a 50 percent refund
- **December 24, 2009** — Thursday — Last day to drop a course without it appearing on the student's transcript
- **December 24, 2009** — Thursday — Last day to change a grading option (pass/fail to letter grade or letter grade to pass/fail; credit to audit or audit to credit)
- **December 25 — January 1** — Friday through Friday — Academic Holidays
- **January 6, 2010**— Wednesday — Last day to withdraw from the University or reduce course load. Students can withdraw or reduce course load after this date only for urgent non-academic reasons.
- **January 12, 2010** — Tuesday — Final Examinations
- **January 12, 2010** — Tuesday — End of 2009-2010 Winter Intersession

Process for UK approval:

Undergraduate Studies Committee ➔ Admissions & Academic Standards Committee (Joe Sottile, chair) ➔ Univ. Senate

---

The General Education Reform Steering Committee, in consideration of its Learning Outcome #4:

> *Students will demonstrate an understanding of the complexities of citizenship and the process for making informed choices as engaged citizens in a diverse, multilingual world.*

proposes a revision of the Foreign Language entrance requirement. The current Foreign Language entrance requirement is the following:

> *"meet Kentucky's pre-college curriculum requirement" (see http://www.uky.edu/Admission/apply.htm)*

which means, according to the Kentucky Department of Education website:

> *"2 credits required or demonstrated competency" (see http://education.ky.gov/KDE/Instructional+Resources/High+School/Additional+Information/The+PreCollege+Curriculum.htm)*

that is, 2 years of high school study, or the equivalent demonstrated competency. We propose that the University of Kentucky entrance requirement be changed from that "seat time" requirement to a competency-based requirement; that is, we propose that the entrance requirement be amended to read:

> "competency equivalent of two years of high school foreign language."

The rationale for this change is the following: In all other academic areas, students entering UK are required to demonstrate competencies, rather than completion of credit hours, as prerequisites for enrolling in university-level coursework. Studies have shown significant variation among Kentucky school districts, in terms of the efficacy of high school language instruction, and resulting student competencies. We propose that students be required to demonstrate competency, according to any of the methods listed below; and that if said competency is not demonstrated, then remediation should be implemented (a one-semester "high beginner" elementary language course at the University of Kentucky, or equivalent), as is currently the case for students with other entrance-requirement deficiencies.

Students may demonstrate competency in any of the following ways:[1]

- STAMP test developed at the University of Oregon, currently implemented in 15 Kentucky public school districts; [2] score of "Novice Mid" or higher in the areas of Speaking, Reading, and Writing;[3]
- AP language or literature exam, score of 2 or higher
- acceptable SAT Subject Test scores in a second language;[4]
- Test of English as a Foreign Language (TOEFL) score above UK minimum ,[5] if the TOEFL constitutes part of the student's application requirements

Students who opt to enroll in the 101-102 sequence of any language at the University of Kentucky do not need to show test results. Heritage speakers would be evaluated on a case-by-case basis, as they are now.

In order to allow for accurate calibration of Kentucky students' foreign language ability from individual school districts and institutions, we propose the following: that the assessment measures be implemented in Fall 2010, along with the new General Education curriculum, and that the scores submitted by incoming students on the tests mentioned above be reported back to the corresponding school districts. The implementation of remediation (coursework) at UK would begin in Fall 2012, thus allowing individual districts and other concerned parties time to make necessary curricular and pedagogical adjustments, to help students achieve the required levels of foreign language proficiency.

---

[1] Heritage speakers would be assessed on a case-by-case basis.

[2] Students could present the score of the STAMP test administered during their high school course of study, if available; alternatively, they could take the test on campus during the summer preceding their first year of study at UK (during Advising weekends). The STAMP test could also be offered during the high school World Language Festival, held annually on the UK campus in May.

[3] Expectations will remain linked to the Kentucky Department of Education and the CPE standards; we anticipate that the statewide standard will reach "Novice High" by 2016.

[4] SAT Subject Test scoring varies by language; see HTTP://professionals.collegeboard.com/profdownload/sat_subject_tests_lang_performance_years_study_2008.pdf.

[5] Current minimum TOEFL scores for admission to the University of Kentucky are 527 (paper-and-pen version), 197 (computer-based), or 71 (iBT).

On Monday, April 27, the SC voted to approve the proposed changes to the foreign language requirement with implementation of testing in fall 2010 and implementation of remediation in fall 2012, and send the proposal with those changes to the Senate with a positive recommendation.

Date: March 27, 2009

TO: David Randall, Senate Council

FROM: Jeannine Blackwell, Chair
Undergraduate Council

RE: Foreign Language Placement Policy

Undergraduate Council met on Tuesday March 25, 2009 to discuss the proposed change in Foreign Language Placement Policy. The Council voted unanimously to approve this policy, but with the stipulation that the date of full implementation of required remediation not be set at 2012, but rather left open until data has been assessed concerning remediation resources needed. This implementation would be an open date after fall 2011, depending on the outcome of the assessment of data.

Steven L. Beshear
Governor

Elaine Farris
Interim Commissioner of Education

EDUCATION AND WORKFORCE DEVELOPMENT CABINET
DEPARTMENT OF EDUCATION

Capital Plaza Tower • 500 Mero Street • Frankfort, Kentucky 40601
Phone: (502) 564-4770 • www.education.ky.gov

March 4, 2009

Susan Carvalho
Assistant Provost for International Programs
Convener, General Education Reform Steering Committee
1125 Patterson Office Tower
University of Kentucky
Lexington, KY 40506

Dear Dr. Carvalho:

Please accept this letter from the Kentucky Department of Education in support of your committee's recommendation of a competency-based, minimal proficiency requirement as part of the University of Kentucky's general education admission requirements.

Eliminating the "seat time" entrance requirement follows the trend of the Council on Postsecondary Education's 2007's 13 KAR 2:20 Guidelines for admission to the state-supported postsecondary education institutions in Kentucky to move toward to a competency-based requirement. The current and proposed (2009) guidelines state that students must either have two units in the same foreign language or demonstrate the linguistic competence equivalent to two years of high school language.

Your proposal also reinforces the 2006 State Board of Education's recommendation to plan for a 2016 world language high school graduation requirement based on a minimum competency level of Basic User (Common European Framework of Reference) or novice-high (ACTFL Proficiency Guidelines). Referencing both these criteria addresses the national call for international benchmarking of educational performance.

Other states (e.g., Michigan) and universities (e.g., University of Washington) are also moving toward the competency-based model. As the flagship institution in the commonwealth, the University of Kentucky will be providing leadership for other postsecondary institutions and secondary schools to help us better prepare our students with skills necessary to compete in the twenty-first century global economy.

Very truly yours,

Jacqueline Van Houten
World Language & International Education Consultant

UNIVERSITY OF KENTUCKY

Dream • Challenge • Succeed

MODERN & CLASSICAL LANGUAGES, LITERATURES AND CULTURES

February 23, 2009

Dr. Susan Carvalho
Assistant Provost for International Affairs and
Convener, General Education Reform Steering Committee

Dear Susan,

I am writing on behalf of the faculty of the Department of Modern and Classical Languages, Literatures and Cultures to express our strong and unqualified support for the proposal being put forward in conjunction with general education reform to change the University's Foreign Language entrance requirement from one of two years of high school "seat time" to a competency requirement based on national standards and measured by widely recognized assessment instruments. This proposal will align entrance requirements for Foreign Languages with those in place for other basic subject areas such as English and Math. It is also very much in keeping with one of the central aims of the University's general education reform. In an age of globalization when full competency in another language is becoming ever more important both in terms of the job market and as an aspect of global citizenship in an increasingly interdependent yet multilingual world, the proposed change will signal the University's seriousness in moving its undergraduate students toward this goal.

We are especially pleased to see that the proposed revision is linked to joint efforts undertaken by the Kentucky Department of Education and the Kentucky Council on Postsecondary Education to improve learning outcomes in the teaching of foreign languages in Kentucky's public high schools. We are aware that the Jefferson County School District has already adopted the competency level "Novice High" as its norm for learning outcomes after two years of foreign language instruction by 2010 but that KDE and the CPE have more realistically identified this as the level to be achieved statewide by 2016. It is important that Kentucky's flagship university be involved in gradually raising the bar for college-bound students, and we are more than willing to participate in the efforts needed to bring about the implementation of this goal.

Sincerely,

Ted

Theodore Fiedler
Professor of German and Chair

1055 Patterson Office Tower • Lexington, Kentucky 40506-0027
(859) 257-3761 • *fax* (859) 257-3743
www.uky.edu

UNIVERSITY OF KENTUCKY

College of Arts and Sciences
Department of Hispanic Studies
1115 Patterson Office Tower
Lexington, KY 40506-0027
(859) 257-1565
Fax: (859) 323-9077
www.uky.edu/as/spa

March 5, 2009

Dr. Susan Carvalho
Professor, Department of Hispanic Studies
Convener, General Education Reform Steering Committee

Dear Dr. Carvalho:

The Department of Hispanic Studies met on February 25, 2009 to discuss the proposal that was submitted to us regarding the university's foreign language entrance requirement. I am attaching the proposal to this letter.

The faculty in Hispanic Studies finds the proposal and its rationale cogent from a pedagogical and curricular standpoint and is willing to have the conversations needed for implementation. We understand that this proposal, which is put forward in conjunction with the General Education reform, changes the two years of high school "seat time" to a competency requirement that is based on national standards and evaluated by recognized assessment instruments. We are indeed pleased to learn from your communication that the proposed revision has the support of the of the Kentucky Department of Education and the Kentucky Council on Postsecondary Education. We look forward to the positive washback effect that this new requirement will surely have on foreign language education at our institution, other institutions of higher education, and, most important, secondary schools across the state of Kentucky. We find the strategy of gradual implementation and targeted remediation for deficient students sensible and effective. We look forward to further updates on the progress of the proposal.

Sincerely,

Dr. Ana Rueda
Professor of Spanish Literature and Chair

From: Joe Sottile [jsottile@engr.uky.edu]
Sent: Friday, April 24, 2009 2:18 PM
To: Brothers, Sheila C
Subject: Admissions and Academic Standards Cmte

Sheila,

The A&AS committee has approved the following proposals:

Foreign Language Assessment Policy Change

Please contact me if you need additional information.

- js

Joseph Sottile
234A MMRB
University of Kentucky
Lexington, KY 40506-0107
859-257-4616
859-323-1962 fax

CURRICULAR TEMPLATES 5-1-09

The proposed General Education curriculum consists of ten courses within four broad areas:

I. Intellectual Inquiry
   a. Inquiry in the Humanities
   b. Inquiry in the Natural/Physical/Mathematical Sciences
   c. Inquiry in the Social Sciences
   d. Inquiry in Creativity & the Arts

II. Composition and Communication
   a. Composition and Communication I
   b. Composition and Communication II

III. Quantitative Reasoning
   a. Quantitative Foundations
   b. Statistical Inferential Reasoning

IV. Citizenship
   a. Community, Culture and Citizenship in the U.S.
   b. Global Dynamics

For each of these courses, a template will outline: a) the general purpose of the course category, b) the core competencies that the course will address, c) at least one type of assessment that will demonstrate these competencies. A version of these templates will eventually be used by a committee in Undergraduate Studies charged with oversight of the General Education curriculum, and by faculty wishing to submit courses for Gen Ed credit. For this reason, we have attempted to design templates that are sufficiently specific to create coherence among the courses of a particular area, yet broad enough to invite participation by a variety of disciplines and colleges.

Intellectual Inquiry: General Preamble

The courses in the area of Intellectual Inquiry are designed in accordance with the University Senate's recommendation that "We should intentionally set knowing how to learn and think as an essential goal of a general education program. At its best, general education establishes a foundation for critical and thoughtful approaches to solving problems and promotes intellectual development. In the context of disciplinary learning, one intended outcome of general education is the development of evidence-based thinkers: students capable of understanding what critical argument demands and what it offers as a way of understanding ourselves, others, and the world around us." The Senate issued the following guidelines regarding the core elements of the General Education curriculum:

- "ask students to explore the nature of intellectual inquiry within the established, broad knowledge areas;"
- "bring students in contact with faculty, advanced graduate students and others who are engaged in the core activities of a research university;"
- "establish a foundation for critical and thoughtful approaches to solving problems and promote intellectual development."

Thus, the Intellectual Inquiry division of the General Education curriculum is designed around four broad knowledge areas: Humanities, Natural/Physical/Mathematical Sciences, Social Sciences, and Creativity & the Arts. Courses that fulfill these requirements must address all of the learning outcomes within the corresponding curricular template.

However, the organization of these four broad knowledge areas is not intended to discourage multi-disciplinary approaches to critical thinking and problem-solving. Indeed, a multi-disciplinary approach will enrich the curriculum, bring students in contact with current modes of scholarly inquiry, and equip our graduates to draw conclusions and make decisions based on multi-faceted frames of reference.

With that in mind, the following faculty guidelines should be kept in mind:

1) While the listed learning outcomes must form part of the course, other learning outcomes may be added, related to the mastery of particular content or of multi-disciplinary approaches to the topics of discussion.
2) A single course may be proposed to fulfill the requirements of two (or more) areas, provided that the course addresses the learning outcomes of each of the areas for which it is proposed. However, in such cases, the student may not apply a single course towards multiple General Education requirements; rather, the student will determine which of the requirements to fulfill with that particular course and, in the end, will still take four courses across the category of Intellectual Inquiry. This provision invites faculty to span traditional disciplinary boundaries, in designing and delivering the course.

Intellectual Inquiry – Humanities

The Humanities are united in their reflection upon the human condition as embodied in works of art and literature (including folklore, popular culture, film and digital media), philosophical and religious contemplation and argumentation, language systems, and historical narratives and the activities and events they relate. The principal activities of humanists and, therefore, the principal skills to be inculcated in students relate to *interpretation* and *analysis*, and the *evaluation* of competing interpretations of the same or similar texts and phenomena. In a course fulfilling the Humanities Gen Ed requirement students should learn to interpret, evaluate and analyze such creations of the human intellect.

Students will demonstrate the ability to construct their own artistic, literary, philosophical, religious, linguistic, and historical interpretations according to the standards of the discipline. It is hoped that students learn to recognize (a) the validity of different points of view – whether these points of view devolve from differences of class, race, gender, nationality or even historical period – and (b) a degree of tolerance and mistrust of dogmatism. Further it is hoped that students will be able to recognize some aspects of human life that might be considered eternal and constant and distinguish these aspects from those which are contingent products of history and culture.

1) Demonstrate the ability to present and critically evaluate competing interpretations through analysis and argumentation in writing and orally.

2) Demonstrate the ability to distinguish different artistic, literary, philosophical, religious, linguistic, and historical schools and periods according to the varying approaches and viewpoints characterized therein.

3) Demonstrate the ability to identify the values and presuppositions that underlie the world-views of different cultures and different peoples over time as well as one's own culture. Students will therefore analyze and interpret at least one of the following: works of art, literature, folklore, film, philosophy and religion, language systems or historical narratives (or the primary sources of historical research).

4) Demonstrate disciplinary literacy (vocabulary, concepts, methodology) in written work, oral presentations and in classroom discussions.

5) Demonstrate the ability to conduct a sustained piece of analysis of some work of art, literature, folklore (or popular culture), film (or other digital media), philosophy, religion, language system, or historical event or existing historical narrative that makes use of logical argument, coherent theses, and evidence of that discipline, with use of library sources when applicable. The student's analysis should demonstrate appropriate information literacy in a particular discipline of the humanities, which, depending on the nature of the assignment might include, for example:

- posing questions that shape an inquiry and identify sources necessary for this purpose

- getting and checking facts

- getting overviews, opposing views, background information, context

- recognizing and finding primary sources and distinguish primary from secondary sources

- identifying scholarly publications (monographs, articles, essays)
  locating them (library stacks, Internet, other libraries)
  citing them (MLA, Chicago styles)

- assessing the value of sources

Intellectual Inquiry – Natural/Physical/Mathematical Sciences

An understanding of the natural world is essential for well-educated citizens who work and live in a world strongly influenced by science and technology. At the heart of this General Education Science Inquiry course is this fundamental idea: Scientists advance knowledge through experimentation. Because this course is designed to convey a general understanding of science and the processes of scientific thinking, it will be taught using strategies that reflect the ways scientists work; students likewise will do basic science, engage its methods, with the goal of attaining some understanding of the way science works in and with the natural and social worlds.

Learning Outcomes

By the end of the course, students should be able to:

1. Describe methods of inquiry that lead to scientific knowledge and distinguish scientific fact from pseudoscience.
2. Explain fundamental principles in a branch of science.
3. Apply fundamental principles to interpret and make predictions in a branch of science.
4. Demonstrate an understanding of at least one scientific discovery that changed the way scientists understand the world.
5. Give examples of how science interacts with society.
6. Conduct a hands-on project using scientific methods to include design, data collection, analysis, summary of the results, conclusions, alternative approaches, and future studies.
7. Recognize when information is needed and demonstrate the ability to find, evaluate and use effectively sources of scientific information.

Guidelines for Course Designers

Each learning outcome is essential to meeting the requirements of a science inquiry course.

While providing for as much flexibility as possible within science disciplines, the syllabus will include the following:

- A demonstrated focus on the processes of science and scientific thinking;
- A required student product (paper, laboratory report, presentation, etc) based on the hands-on project. This requirement is the curriculum-embedded performance-based assessable product and must be a component of the course grade, weighting at discretion of instructor.
- Information literacy should be integrated into the course.

Intellectual Inquiry – Social Sciences

Although they vary in terms of content and intellectual traditions, foundational courses in the social sciences promote an understanding, based on living bodies of theory and research, of individuals in the context of social interactions, groups, and societies. Human societies are diverse and varied, with different understandings of the world among them, and with a multiplicity of actors within them who do not necessarily share the same views or goals. As a consequence, human phenomena are not as easily predictable as natural phenomena, and social science inquiry can lead to many plausible answers to any given question. Nevertheless, inquiry in the social sciences is empirical, guided by rigorous but varied theories and methods. Thus, students who complete a General Education course in the social sciences should understand how a discipline's modes of scholarly inquiry have led to the development of the discipline's shared bodies of knowledge and the interplay between a social science discipline and its broader social context. The successful social science course will present a variety of approaches to any given question about social phenomena, preparing students to critically evaluate the variety of social situations with which they may be confronted in their everyday lives.

1. Demonstrate knowledge of the theories associated with a social science discipline, either broadly or as applied to an important social science topic.

2. Demonstrate an understanding of methods and ethics of inquiry that lead to social scientific knowledge.

3. Demonstrate an ability to identify and use appropriate information resources to substantiate evidence-based claims.

4. Demonstrate knowledge of how a social science discipline influences society.

5. Demonstrate an ability to identify a well-formulated question pertinent to a social science discipline and to employ the discipline's conceptual and methodological approaches in identifying reasonable research strategies that could speak to the question.

Intellectual Inquiry – Arts & Creativity
Toward Outcomes in Creative Endeavors

Creativity is pertinent to all disciplines. In general education, a focus on creativity adds to the vitality and relevance of learning and will translate into graduates who are better prepared to face the challenges of a dynamic society. Inquiry Courses under this rubric will explore the human need to experience, comprehend, and utilize processes that transcend the conventions of utility, whether that involves the mastery of rules or the decision to break them, the desire to identify and refine the expressible or to recognize and prize the ineffable. The creative process and its products and results are the focus on this course; while they may be taught from the traditional fine arts perspectives, it is expected that courses will also be based on an exploration of the creative and aesthetic aspects of "rational", "scientific" or quantitative disciplines, e.g., the "elegance" of certain scientific/mathematical proofs or the beauty inherent in a well-articulated design.

Learning Outcomes

- Students will personally perform, produce, fabricate or generate an artifact or artifacts that demonstrates their engagement with the creative process (e.g. an object, product, installation, presentation, record of a performance etc.) either as an individual or as part of a collaborative. As part of this process students will:
  - Define and distinguish different approaches (historical, theoretical, and methodological issues) to "creativity" as appropriate to the disciplinary practices specific to the subject, medium, or approach that informs a particular course.
  - Apply the logic, laws, or constraints of the area of study, (e.g, "out of the box" thinking, or the masterful, elegant treatment of given rules or forms).
  - Demonstrate the ability to critically analyze work produced by other students in this course and in co-curricular events using appropriate tools. These analyses should utilize relevant information resources to incorporate historical, theoretical, and or cultural factors.
  - Evaluate results of their own creative endeavors and, using that evaluation, reassess and refine their work.

Guidelines for Course Designers

The primary emphasis of courses in the Area of Inquiry must be on active learning through student performance, expression, and/or production (what is known as "process-focused" creativity). This emphasis should be documented through the number of assignments or class meetings devoted to this work (expressed as a percentage) or through the grading mechanism for the final grade for the course.

Though "process-focused" the course may highlight other approaches to creativity. Students may be expected to explore forms of creativity that are constraint-focused (mastering or overcoming established "laws" or "systems"), product-focused (emphasis on the originality, utility or value of the thing produced), transformation-focused (risk-taking, willingness to make mistakes, role of chance) or fulfillment-focused (personal or

professional accomplishment). Proposals for courses should identify which approaches are present in the syllabi.

Syllabi must incorporate assignments or exercises whose final product reflects a process of analysis, evaluation, reassessment, and refinement.

Syllabi must include projects or exercises that introduce tools or develop information literacy appropriate to the discipline.

Syllabi must incorporate attendance and/or participation in relevant co-curricular activities as part of the course. Students should be required to critically engage with these activities through a written analysis or similar project.

Composition and Communication

While in many universities first-year composition and oral communication are taught as separate courses, the UK General Education curriculum recognizes that speaking, writing, and using visuals effectively are interrelated skills. The Composition and Communication I and II courses are designed to engage students in the practice of composing and communicating ideas using speech, writing, and visuals in an active learning environment. Both courses participate in the broad learning objectives of developing critical thinking and information literacy skills within an academic context that emphasizes the problems and decisions students will confront as educated citizens of the twenty-first century. Students will receive substantial practice in composing, critiquing, and revising ideas for audiences and in developing public speaking and interpersonal communication skills, with a goal of developing life-long habits of writing and speaking for learning, personal expression, and community participation. The proficiencies demonstrated in these courses will then be reinforced throughout the students' major course of study.

Composition and Communication I

In this course, students will demonstrate the ability to

- compose written texts and deliver oral presentations that represent a relevant and informed point of view appropriate for the audience, purpose, and occasion.
- analyze, create and use visuals as a form of communication.
- demonstrate an awareness of appropriate strategies used to communicate effectively in different situations (e.g., large groups, small groups, interpersonal) and contexts (e.g., face-to-face, digital).
- find, analyze, evaluate, and properly document pertinent primary and secondary sources, using relevant discovery tools, as part of the process of preparing speeches, composing texts, and creating visuals.
- develop flexible and effective strategies for organizing, revising, practicing/rehearsing, editing, and proofreading (for grammar and mechanics) to improve the development and clarity of their ideas in ways appropriate to the context.
- define revision strategies for essays, speeches, and visuals, set goals for improving them, and devise effective plans for achieving those goals, in collaboration with peers, the instructor, and librarians.
- engage in a range of small group activities that enable them to explore and express their experiences and perspectives on issues under discussion.

Composition and Communication II

In this course, students will demonstrate the ability to

- compose in writing and deliver orally with visuals (delivered in a face-to-face or digital environment) at least one major project grounded in scholarly research that is appropriate and effective for the audience, purpose, and occasion (The development of one or more major research projects is the course's primary educational focus.).

- conduct significant research on their subject, using the resources of the UK Libraries and other discovery tools, as part of the development of their projects.
- employ more advanced strategies for developing ideas and analyzing arguments, with greater emphasis on addressing and mediating issues of public interest, and with evidence of critical thinking in both the conception and the development of the thesis.
- refine their speaking, writing, and visual communication skills, focusing on matters of construction, design, and delivery style.
- critique the work of self, peers, and professionals.
- revise and rehearse their written and oral presentations, in collaboration with peers, the instructor, librarians, and appropriate members of the public.
- employ and evaluate interpersonal and small group communication skills, as they might apply to personal and professional environments.

Guidelines for Course Designers:

Students should compose multiple drafts of their major assignments, and instructors should review at least one draft, before the final version is presented for a grade. The use of small-group discussion, practice-based activities, and peer review are critical to the success of these courses. Course readings and assignments can be organized around disciplinary and professional contexts or broad interdisciplinary topics, as long as the focus of the course is the development of proficiency in oral, written, and visual communication (as outlined in the learning outcomes) that can be applied to other disciplines and to contexts beyond the university.

Curriculum-Embedded, Performance-Based Assessable Products:

- Formal written texts
- Recorded presentations (e.g., individual speeches, symposiums, panels, audiovisual presentations)
- Revision plans and/or peer reviews
- Written documentation (e.g., self and peer evaluations, application and reflection papers, formal outlines, flowcharts, cluster diagrams, generative lists, or other artifacts of planning and shaping messages)
- Visual products (e.g., the use of presentation software, Web sites, posters, documents incorporating digital images)
- Peer and group reviews of interpersonal interactions/simulations/role plays
- Interpersonal and small group dynamics reflection papers

Quantitative Foundations

Quantitative reasoning (QR) is a conceptual process that employs one or more of a family of mathematical or logistical methods to analyze and solve problems in a variety of disciplines. Such methods guide both deductive and inductive reasoning in mathematics, the sciences (including physical, life, psychological, social, political, and economic sciences), the humanities and arts as well as in engineering, computer science, and information technology. They also have great utility in helping students clarify and critically evaluate information that is relevant to personal life and to everyday decisions about health, finance, citizenship, and government. When these methods are applied to real-world examples and taught in contexts that engage student interest they have been found to improve the capacity of students to draw sound inferences. Quantitative reasoning is multi-disciplinary and invites a wide diversity of disciplines and departments to offer courses to satisfy this requirement. We describe here the requirements for the first course in Quantitative Reasoning, focusing on Mathematical, Logical, and Statistical Foundations. Statistical elements in this course are at the level of basic skills in descriptive statistics; the second course in Quantitative Reasoning will focus on Statistical Reasoning and Inference and is described in its own template.

Learning Outcomes

As with all General Education courses, students in this course will demonstrate information literacy by their measurable ability to independently locate, identify and utilize information resources from a variety of credible sources. They will be able to understand the ethics surrounding the information. Using critical thinking skills, students will extract, evaluate and validate information as well as organize, communicate and accurately use it in their research.

Courses designed to meet the Mathematical, Statistical, and Logic Foundations requirement will demonstrate how the course elements (e.g., structure, activities, assignments, projects, homework, papers, and exams) will contribute to the following student learning objectives.

Learning Outcomes*: Students will be able to:*

1. demonstrate proficiency with number sense (e.g., order of magnitude, estimation, comparisons, effect of operations) and with functional relationships between two or more sets of variable values (i.e., when one or more variables depend upon, or are functions of, other variables) and also relate different representations of such relations (e.g., algebraically or symbolically, as tables of values, as graphs, and verbally). Relations between numerical values must be included in order that students will be prepared for the Statistical Inferential Reasoning course.

2. apply fundamental elements of mathematical, logical, or statistical knowledge to model and solve problems drawn from real life. In this modeling process, students will be able to:

    a. recast and formulate everyday problems onto appropriate mathematical or logistical systems (viz. algebra, geometry, logic), represent those problems symbolically (i.e., in numbers, letters, or figures), and express them visually or verbally.

    b. apply the rules, procedures, and techniques of appropriate deductive systems (e.g., algebra, geometry, logic) to analyze and solve problems.

    c. apply correct methods of argument and proof to validate (or invalidate) their analyses, confirm their results, and to consider alternative solutions.

    d. interpret and communicate their results in various forms, including in writing and speech, graphically and numerically.

    e. identify and evaluate arguments that contain erroneous or fallacious reasoning (e.g., unsound mathematical or logical inferences), and detect the limitations of particular models or misinterpretations of data, graphs, and descriptive statistics.

At least 30% of the course should address objective (1), and at least 40% of the course should address objective (2). (If the course has more than three credit hours, then these percentages refer to the equivalent time of a three credit hour course.)

Guidelines for Course Designers

There are definite needs and rich opportunities for many different departments (besides the ones currently addressing the current USP Basic Skills and Inference requirements) to develop and offer courses. Courses at our benchmark institutions that are addressing their own QR requirements are drawn from mathematics, statistics, engineering, natural and physical sciences, humanities, social sciences, art, and other disciplines.

The course should have a central applications-driven, problem-solving focus, with particular attention to problems of potential "real-life" relevance to the students. The students should be actively engaged in modeling and problem-solving (though the problems and modeling may range from relatively straightforward to complex). There are various technology tools (e.g., interactive applets or computer programs) that can assist in visualizing concepts and making models, as well as reinforcing basic skills. The desire is that the course will develop such quantitative reasoning skills as to be generally useful to students in their further studies, work, and engagement in civic life.

The course will embed information literacy incorporating independent learning and utilizing active learning techniques, technology, instruction and consultations and/or tutorials. Instructors will collaborate with librarians to create a course-relevant component developing lifelong learning skills allowing students to identify, evaluate, utilize, apply and communicate information, a critical competency in becoming a contributing member of society.

The course will ensure that students will create at least one assessable product (e.g., the result of modeling and solving a problem) that can be shared with UK's Assessment Office to contribute to the assessment of the General Education program.

It is to be assumed that students will enter the course with an appropriate mastery of high school mathematics through Algebra I, Algebra II, and Geometry to earn a Math ACTE score of at least 19, or the equivalent.

Statistical Inferential Reasoning

Courses that would qualify to be one of the "3-hour course(s) devoted to a conceptual and practical understanding of statistical inferential reasoning" should be focused on the student's ability to evaluate the efficacy of claims based on statistical constructs and to understand and articulate important risks that these claims often address, both through the formal science of statistical inference and informal activity of human inference. These courses should not have computations and derivations as their primary focus; neither should they be abstract reasoning courses devoid of numerical data.

Toward that end, it is expected that any course that qualifies must exhibit a syllabus that offers convincing evidence that, upon successfully completing this course, students will be able to:

A. (At least 25% of the course) - Evaluate common claims arising from the formal statistical inference conveyed in margins of error and confidence intervals. Students must be able to articulate the sense in which margins of error and confidence intervals address and purport to quantify risks that are of practical interest. Although skill in the computation of these quantities is an acceptable by-product, the demonstrated skill set **must not** be confined to, or even largely focused on the computation of these quantities,. In particular, the student must:

    1. Be able to connect the uncertainty of sampling variability with margins of error and confidence intervals. This connection needs to be formal in the sense that the student needs to be able to demonstrate an understanding of the roles of sampling distributions, and standard scores, as well as the central limit theorem (non-mathematical treatment) in the production, but more importantly, the interpretation of margins of error and confidence intervals.

    2. Be able to demonstrate an understanding that some of the other major sources of uncertainty, such as biased samples and questionnaires that are worded in a biased or misleading fashion are not addressed by margins of error or confidence intervals.

B. (At least 25% of the course) - Evaluate common claims arising from the formal statistical inference conveyed in null hypothesis testing associated with statistically designed experiments. Students must be able to articulate the sense in which null hypothesis testing addresses and purports to quantify risks that are of practical interest. Although skill in the actual testing of such hypotheses is an acceptable by-product, the demonstrated skill set **must not** be confined to, or even largely focused on the actual construction of such tests. In particular, the student must

1. Be able to demonstrate a substantive understanding of "statistical significance," and the sense in which p-values and null hypothesis testing offer a useful and practical articulation of risk assessment. To do this, the student must also be able to demonstrate mastery of the basic language of statistical experimental design and null hypothesis testing, and articulate the role that statistical modeling plays in the development and interpretation of "statistical significance."

2. Be able to articulate the strengths and weaknesses of using classical null hypothesis testing as a decision tool. Students should understand the sense in which common hypothesis testing, and the associated "significance" addressed in media, is intimately related to a perspective that looks for evidence against a claim, and infers about the truth of that claim based on the weight of that evidence

C. (At least 20% of the course) - Evaluate common claims that arise from statistical constructs, like charts and graphs, tables and numerical summaries, through the important, but informal, act of human inference. Although skill in the actual construction of these constructs is an acceptable by-product, the demonstrated skill set **must not** be confined to, or even largely focused on these constructions. In particular, students must:

1. Be able to demonstrate an understanding of the challenges that confront informal inferences arising from these kinds of statistical entities and offer evidence that they can construct these inferences in a rational and informed manner.

2. Be able to discuss the practical importance of effective conditional reasoning (e.g. false positives, Prosecutor's paradox); the importance of hidden variables and confounding (e.g. Simpson's paradox); the issue of association versus correlation and correlation and causation; the importance of having the right and/or enough information; and the problem of misinterpreting randomness.

D. (At least 5% of the course) - Demonstrate information literacy by their measurable ability to independently identify and utilize appropriate information resources from a variety of sources. Instructors will collaborate with librarians to create a course-relevant component developing lifelong learning skills allowing students to identify, utilize, evaluate, apply and communicate information, a critical competency in becoming a contributing member of society.

The prerequisite for courses in this category is a course in the proposed category of "quantitative foundations."

Guidelines for Course Designers

The ways in which the course outcomes are achieved, and the contexts in which the concepts are motivated, are the purview of individual departments, colleges, and instructors. However, while many of the concepts discussed in this course category are, at their root, complex mathematical concepts (e.g. the Central Limit Theorem), this course ***is not*** intended to be a mathematically complex course. Rather, the complexity of the course will likely be rooted in the ideas being discussed and the ways in which core concepts in statistical science connect to and surface in activities as common as reading the morning newspaper. With this in mind, the following suggestions are offered:

Curriculum-Embedded, Performance-Based Assessable Products

All students must create at least one assessable product that can be shared with the University's Assessment Office and the course syllabus must make clear what that product is. Individual instructors (or departments) are encouraged to consult with the Director of Assessment at the University, prior to the construction of a new syllabus. Rather than test knowledge or particular techniques, the assessment tool(s) should allow students to demonstrate an understanding of how statistical inference is used in decision making and to appraise the efficacy of statistical arguments that are reported for general consumption. That is, the assessment, too, should focus upon real world applications of learning outcomes A-D above. We recommend that the tool be validated, structured to allow electronic submission, and that an appropriate assessment rubric be developed based upon these criteria.

Community, Culture and Citizenship in a Diverse U.S. Society

Courses in this area lay the foundation for effective and responsible participation in a diverse society by preparing students to make informed choices in the complex or unpredictable cultural contexts that can arise in U.S. communities. These courses may be disciplinary or interdisciplinary and should engage students in interactive learning techniques such as debates, digital documentaries, guided discussions, service-learning projects, and simulations, as well as develop their information literacy. Students completing this requirement will achieve the following learning outcomes:

A. Demonstrate an understanding of historical, societal, and cultural differences, such as those arising from race, ethnicity, gender, sexuality, language, nationality, religion, political and ethical perspectives, and socioeconomic class.

B. Demonstrate a basic understanding of how these differences influence issues of social justice and/or civic responsibility.

C. Demonstrate an understanding of historical, societal, and cultural contexts relevant to the subject matter of the course.

D. Demonstrate an understanding of at least two of the following, as they pertain to the subject matter of the course:
    a. Societal, cultural, and institutional change over time
    b. Civic engagement
    c. Regional, national, or cross-national comparisons
    d. Power and resistance

E. Participate in at least two assessable individual or group projects that focus on personal and/or collective decision-making. The projects should require students to identify and evaluate conflicts, compromises, and/or ethical dilemmas. These projects shall demonstrate a basic understanding of effective and responsible participation in a diverse society.

Global Dynamics

Courses satisfying this requirement will focus attention on the student's civic role and place in the world and the dynamic interaction between locale (place and people) and global processes (international and transnational). In order for UK students to be prepared for careers in a globalized world, they must understand and appreciate global cultural diversity and the impacts of globalization processes. This new knowledge and attitude will also lead to the student's heightened awareness of her/his own culture and society. Issues like, but not limited to, environmental concerns (e.g., climate change, soil depletion, transboundary pollution), the built environment (e.g., architecture, urban planning, sustainable design), public health (e.g., sanitation, local-global disease transfer, nuclear and coal-fired energy risks), political and socio-economic structures and policies (e.g., social and political processes; diverse public policies; and social and governmental regulations) and the interaction of world cultures (including music, art, religions, literature and folklore) are among the topics that may be explored in the many possible courses fulfilling this part of the general education curricular framework.

Learning Outcomes

1. Demonstrate a grasp of the origins and shaping influence of human diversity and issues of equality in this world.
2. Demonstrate an understanding of the civic, and other, complexities and responsibilities of actively participating in a diverse, multiethnic, multilingual world community.
3. Demonstrate an awareness of how individual and collective decision making and civic responsibilities often generate ethical dilemmas, conflicts, and trade-offs that must be thoughtfully evaluated, weighed, and resolved.
4. Demonstrate an awareness of major elements of at least one non-US culture or society, and its relationship to the 21st century context. However, this does not preclude a studied examination of the historical evolution of such issues, or an emphasis upon one prominent time period.
5. Demonstrate an understanding of how local features (economic, cultural, social, political and religious) of urban or rural communities, ethnicities, nations and regions are often linked to global trends, tendencies, and characteristics that often mutually shape one another.
6. Demonstrate an understanding of at least two of the following, as they pertain to the subject matter of the course: a) Societal, cultural, and institutional change over time; b) Civic engagement; c) Cross-national and/or comparative issues; d) Power and resistance

Guidelines for Course Designers:

1. Students will complete a project accounting for at least 15% of the course grade that explores a significant issue or problem from a global perspective.
2. The non-US focus must constitute at least 50% of the course.

The attached document contains the proposed Delivery Models for each of the ten Curricular Templates of the proposed General Education Curriculum (Appendix A). It also contains various illustrations, bibliographies, and other supplementary materials to amplify the information contained in the Curricular Templates (Appendix B).

APPENDIX A – DELIVERY MODELS

I. Intellectual Inquiry

A. Intellectual Inquiry in the Humanities

To deliver these courses, which are heavily dependent on discussion and writing, each course should contain no more than 30 students. If it is absolutely essential to have larger enrollment courses, the courses should be capped at 60 to allow for no more than 20 students per teaching assistant/instructor in the break-out groups. This distribution will allow for more intensive writing assignments and involved discussion. It is anticipated that the courses will be offered from the 100 to the 300 levels, although primarily at the 100-200 level. They will be open to non-majors and have no pre-requisites.

B. Intellectual Inquiry in the Natural/Physical/Mathematical Sciences

The Science Inquiry Curricular Team was aware that when it included a hands-on project requirement that this would entail extra work for the instructors. We considered this issue.

Our Team was won over, by a number of positive factors, such as:

- current K-12 science learning outcomes stress the importance of hand-on activities and ours is a simple extension of that curriculum;
- these activities add life to a course that doesn't have a lab component;
- the structure of science is inherently based upon observational methods, so a one-time introductory science class should rightly include this component;
- a science course that involves a project with a written component will strengthen the writing component of the overall curriculum,

The majority of the current USP Science courses are taught as large enrollment courses (150 – 300+ students). Anticipating that the new Gen Ed Science Inquiry courses will also be large enrollment courses (100+ students at a minimum), the Curricular Team members have provided examples of hands-on projects (with anticipated costs) that could be incorporated into a Gen Ed Science Inquiry course. See Appendix B.

C. Intellectual Inquiry in Social Sciences

Departments and multidisciplinary teams offering General Education courses in the social sciences should be encouraged to experiment with varying delivery models, including (but not limited to) (a) large (150 +) lecture sections with varying combinations of discussion or (where appropriate) laboratory sections and assistance from Teaching Assistants, (b) medium-sized (75-150) lecture sections with assistance from Teaching Assistants, and (c) smaller sections. Appropriate delivery may vary by discipline (or multidisciplinary combination), but it will be the case in all departments that instructors of sections of General Education courses in the social sciences cannot reasonably be expected to fulfill expectations for active learning and the development of critical thinking skills without adequate assistance and support. This will include Teaching Assistants as well as access to smart classrooms and other appropriate technical support.

D. Intellectual Inquiry in Arts & Creativity

- Many existing courses (e.g. Art Studio courses, Design courses, creative writing) are currently offered with enrollments of 20 or less. It is expected that this will continue and that many new courses in this area of Inquiry will be in this format.

- It is possible that courses can be designed using the large lecture/breakout format.

- A majority of the courses will be offered at 100 or 200-level, though we anticipate some courses at 300-level or above.

- Most courses in this area will be open to enrollment for non-majors, with no pre-requisites.

II. Composition and Communication I & II

Delivery Models:

Integration of Oral, Written, and Visual Communication. It is beyond the purview of this committee to determine the structure under which the integrated communication sequence should be administered. Such conversations should take place in collaboration with the deans of the two primary colleges (Communication and Arts & Sciences), department chairs, faculty, Undergraduate Studies, the Office of the Provost, and the University Senate (as well as other stakeholders). In this conversation, national models and UK resources should be further studied. These conversations must recognize the dual

imperatives of excellence in undergraduate instruction and graduate education, particularly in English and in Communication.

Given these parameters, the curricular teams recommend the formation of an integrated center for training TAs and other instructors for the Composition and Communication courses, co-directed by faculty leaders in the Writing Program and Department of Communication. A center would

- allow for the sharing of administrative support and teaching staff and coordination of learning outcomes of the courses;
- "establish an academic staffing model based on national best practices with an optimal mix of Teaching Assistants and full-time [and part-time] faculty, including clinicians and lecturers" (taken from Objective 1.2 of the University's proposed strategic plan);
- be an ideal venue to train and evaluate instructors, to assess curriculum and instruction; and to suggests ways to incorporate effective information literacy research skills, which are an integral component of the courses; and
- encourage collaborative research opportunities in the area of instructional assessment.

The curricular teams suggest that, in the event that a Center is deemed feasible, clear memoranda of agreement be established with departments whose graduate students will teach Composition and Communication courses.

Class Size. According to the National Council of Teachers of English (NCTE), students should learn to write in small classes of no more than 20 students per section. Because teaching composition and communication responsibly is labor-intensive, small class size is critical to student success. NCTE further recommends that college instructors teach no more than 60 students per term. Currently, the Writing Program is able to cap its first-year writing courses at 22 students per section, and some full-time lecturers teach up to 88 first-year students per semester. We recommend that the University of Kentucky adopt the NCTE guidelines for course enrollment and instructor load, but in no case exceed the current limit of 22 students for either course. Graduate student teaching assistants (TAs) should teach no more than 66 students per academic year. The success of this curriculum depends upon these labor models.

Instructor Training, Qualifications, and Observation. To honor the interdisciplinary intent of the courses, TAs and other instructors of the course should be drawn from more than one discipline. The Southern Association of Colleges and Schools requires graduate students to earn 18 credit hours of coursework in the discipline before teaching undergraduate courses, so most of the pool of TAs are likely to be drawn from—but not limited to—disciplines that are deeply engaged in the teaching of writing and communication.

Implications for Other Existing Resources. Expansion of campus-wide training in oral and visual communication has implications for the existing Writing Center and, in the longer term, the Writing Initiative. Communication across the Curriculum (CXC) is the cutting edge, so moving these units toward the CXC model could make the University of Kentucky a model for institutions across the country.

III. Quantitative Reasoning

A. Quantitative Foundations

Courses of this kind introduce students to a new language or to a more sophisticated use of mathematical or statistical skills than they may have encountered in high school. In a real sense this is akin to learning a foreign language. Classes of 25-30 students afford the best conditions to support this kind of learning, but if this is not economically feasible and a large lecture format is contemplated, there must be at least one recitation type class per week devoted to amplifying or clarifying lecture materials, to addressing particular students' questions, and to providing guided practice in the subject matter. These should be taught by TA's well grounded in the subject—preferably advanced TA's. Departments must have the resources (including designated faculty time) to provide regular initial training for these TA's and coordination and supervision through the semester.

An analysis must be made to anticipate potential changes in course enrollment patterns as students shift from the USP Inference requirement to the Gen Ed QR requirement. It is desirable and imperative to invite and encourage many departments to offer courses meeting the new requirements.

B. Statistical Inferential Reasoning

- Large lecture classes alone are not recommended. Lectures, perhaps meeting once or twice a week, with recitation breakouts are a better solution. While class size may end up being the purview of individual departments or colleges, it does have implications for the comparability of the different assessments that may be embedded across departments and colleges.

- Teaching assistants will be needed to help staff the recitations. These TAs will need to be trained and departments will need resources to create and sustain effective training programs.

IV. CITIZENSHIP

A. Community, Culture and Citizenship in U.S.

The committee feels that this template would fit a range of class sizes, from small seminars to large lecture courses and, therefore, resources will need to be considered in light of the size of class to be taught. Teaching Assistants will be

required for larger courses, and/or courses initiating innovative pedagogical techniques.

The courses taught according to this template will require smart(er) classrooms, and course development support (such as workshops and seminars). In addition, instructors are encouraged to cross-list courses (for example, courses within special programs should be able to cross-list with departmental offerings), and to seek librarian involvement (for example, regarding information literacy).

B. **Global Dynamics**

In satisfying this component of the new General Education curriculum, courses may be offered at the 200-, 300- or 400- levels. Class enrollment size would generally range between 50 and 150 from one department to another. For courses with enrollments of 100 or more, a teaching format involving two lectures and one discussion section per week would be followed and ample TAs would be supplied to cover the discussion sections. All courses meeting this requirement would assign an individual or team project, which would both: (1) be included as part of the final course grade; and (2) act as the means for assessing the courses success in meeting the learning outcomes specified in the new General Education curriculum.

APPENDIX B – ILLUSTRATIONS, RESOURCES, ETC.

CONTENTS:

I. Sample projects, Natural/Physical/Mathematical Sciences

Earth and Environmental Sciences

For Earth and Environmental Sciences courses this could involve utilization of climate data (ice cores, geochemical parameters recorded in the rock record) or earthquake location/intensity data available, e.g., through the U.S. Geological Survey. A hypothetical course might be: Gambling on the Big One: Earthquake Risks and Prediction

The course would focus on seismic hazard risk assessment and prediction. Lectures and readings would provide content background. There would be five blocks of work time (~2 lectures) in which groups of 5 students would first access and download data sets, organize and plot data (depth and spatial distribution of earthquakes in the crust), intensity distribution of earthquakes, determine recurrence intervals of events of various magnitude, and assess precision of all measured parameters. Students would use standard spreadsheet/ statistical/graphing software (Excel).

This would require 20 laptops/ 100 students accessing on-line datasets via the campus the wireless system.
One TA / 100 students

Physics

There are many sound-related projects which students can do at home, some of which involve using software available for free on the web. Students have analyzed the sound made by their voice, their guitar,
and by birds, for example. Other home projects involve various optical effects students can investigate, such as interference -- observed with soap films on water, diffraction and refraction of light, or a study of
the colors of the sunset. Students can obtain and characterize small systems of lenses, or study the effects of using the polarizing lenses in their sunglasses to look at scattered light.

It is estimated that 1 full-time TA would be needed for every 100 students in these classes. Their assignment would be to meet with the students to discuss their project ideas and plans, and to grade the final papers. To maximize efficiency, the project assignments could be staggered across the class
over the first half of the term, and collected and graded over the last half. TAs could meet with 15 students for each of the first 7 weeks, and grade the papers of 15 students in each of the final 7 weeks.

Medicine

Biofeedback training and execution

In the near future, neuro-prosthetic interfaces may be used to control devices and machinery, in contrast to mice, joysticks and remote controls. This laboratory will allow students to explore biofeedback as an approach to developing electronic interfaces of the future, whether they are household devices, prosthetic limbs or wearable electronics. Neuro-prosthetic interfaces require a training period to align the biological or neurological responses to the output and an execution phase to implement the device. Students will learn about neuro-prosthetic interfaces, the biology of learning & memory, and the scientific method.
Students will be given the opportunity to integrate biofeedback sensors (EMG, EEG, etc.) with standard computer software.

DESIGN: Groups of 10-15 students would receive an introduction to the biofeedback equipment and train on standard computer interface software. Independently, the groups will choose several variables to manipulate (e.g. position of sensors, direction of the sensors, and difficulty of the task). Quantitative measures will be recorded, including time to criterion performance, number of errors, and permanence of task performance.

OUTCOME: Students will be introduced to the scientific method using biofeedback electronic control that is likely to become more common in the future. Students will gain an understanding of trial and error learning, persistence of learning, and reversibility of learning.

RESOURCES:
1. Small classroom/laboratory setting
2. Biofeedback hardware (sensors, control module)
3. Software

Biology

This activity is used to introduce the students to a soil erosion unit in the Human Ecology (BIO 102) course (current USP course) and involves the students conducting a soil survey of the state. Students collect soil samples from around the state of Kentucky. The students, in groups of 8 – 10, test these samples for nitrogen, potassium, phosphate and pH (using commercially available soil test kits). They also determine the relative fertility of the soil samples, and conduct an animal and microbial inventory of the soil samples. This activity is used to introduce the students to the soil erosion unit of the Human Ecology (BIO 102) course. During later class periods, the results obtained from the soil tests are used as a basis for the lecture. The students use their results to hypothesize on the relationship between the chemical levels and the relative fertility of soil. Each student submits a written report of the activity and each group orally shares their results with the rest of the class.

Another activity focuses on the problems associated with water pollution. In order to sensitize students to the impact of even small amounts of pollutants on water ecosystems, the unit begins with a water pollution experiment. In this activity, students test the effects of common household fluids and waste on water quality. During later class periods, the results obtained from the water pollution tests are used as a basis for the lecture.

Both of these activities have been successfully carried out with 300 students in a lecture hall during a 50-minute class period with the assistance of only one teaching assistant.
Estimated cost $100.00/ 300 students

Rehabilitation Sciences

Topic: Sensory Mapping and Tactile Perception
Goal: Assess the distribution and sensitivity of tactile sensory endings on human skin throughout the body surface using an adjustable two-point discrimination assessment tool.

Procedure: The class is divided into pairs, with each student operating as a subject on one turn and a tester on a second turn. An adjustable 2 pt assessment apparatus (left picture) is touched to the skin site in question and the subject (who is blind-folded) is required to respond with the words “one” or “two” to indicate their perception of the event delivered by the tester. The response is recorded and the testing cycle repeated with a different inter-point distance. Inter-point distances are adjusted in 1 mm steps (up and down) to find a perceptual threshold point, defined as the distance at which a subject is able to detect two distinct points 50% of the time within a pre-determined number of trials. The procedure is repeated for different body parts (leg, arm, back, face, fingers, etc). Data can then be complied across the entire class to build a 2 pt sensitivity map of the body surface. Simple descriptive statistics could be run to provide quantitative insights and the data can be compared to published reports on tactile sensitivity.

Resources: 2-point tools are low-cost items than can be ordered through most science supply catalogs. For a class of 300, you would need 150 sets for each pair of students. Approximate

cost for supplies = $5.000. This would be a onetime initial cost, since these devices can be reused in subsequent semesters. Alternatively, a set of 2 pt testers can be made from simple household items if desired. This hands-on project can be performed either in or out of class. A TA trained in 2 pt assessment would be useful to field questions from the students. The TA would only be needed for those class periods or time periods when the project was being conducted during the semester.

Chemistry

Do pesticides break down at the same rate? Does the rate depend on the pH?
This exercise addresses the question of whether chemicals break down at an observable rate in the environment. Depending on the specific focus of the course, students can address the question of whether different chemicals (in this case commercial pesticides) behave in the same manner, whether different soils lead to different rates of chemical degradation, or others.

Students collect soil samples in plastic vials. To one is applied a small amount of a dilute solution of Roundup in water. The other vial functions as a control. After a week or two, the content is analyzed by thin layer chromatography. Ninhydrin stain can be used to visualize the residual compound.

Cost ~$500 for 300 students, plus TA time for preparation of solutions, assistance with the TLC step, and grading.

Mathematical Sciences

Example course; Geometry and Symmetry in Nature
The nature of space imposes striking constraints on organic and inorganic objects. This seminar examines such constraints on both biological organisms and regular solids in geometry.

Geometry.
Construct and catalog regular solids (solids whose faces are congruent regular polygons). Count vertices, edges and faces. Verify Euler's relation. Have we found all regular solids? Construct polyhedra with faces that are one of two regular polygons. (Such as the pattern of hexagons and pentagons on a soccer ball.)

Cost: Classroom sets of snap-together polygons for experimentation.
TA's to grade and give guidance.

Summary of resources needed for the SAMPLE projects listed above:

- The majority of the current USP Science courses are taught as large enrollment courses (150 – 300+ students). It is anticipated that the new Gen Ed Science Inquiry courses will also be large enrollment courses (100+ students at a minimum),

- That several “general purpose science labs” be made available for Gen Ed Science Inquiry classes on a rotating basis throughout the semester.
- Laptop computers: 20/100 students
- Consumable supplies (chemicals, test kits): $100 - $500/300 students
- Up-front equipment (other than computers): $5000/ 300 students (one –time costs)
- Teaching Assistant support for all courses (average -1 TA per 100 students)

Curriculum-Embedded, Performance-Based Assessable Product:

The student product (paper, laboratory report, presentation, etc) based on the hands-on project.

II. SAMPLE ASSESSMENTS, ARTS & CREATIVITY

Options for assessment include direct and indirect measurements:

Direct: Assessment should be based on artifacts created by students in the course. These artifacts may include records of performance/object or a portfolio in which students document and evaluate the process and products of their work for the course.

Indirect: Assessment could be linked to the current Oswald Creativity contest (an increase in the number of applicants to the competition, an increase in the quality of the applicants work over time)
Assessment could be linked to increased rates of attendance or participation in campus cultural or co-curricular events.
Assessment could be linked to other undergraduate research programs such as eUreKa, Kaleidoscope.

III. SAMPLE QUESTIONS AND BIBLIOGRAPHY, QUANTITATIVE FOUNDATIONS

A Few Examples of Potential Questions/Investigations of Varying Complexity

1. [From *For All Practical Purposes*, 7th edition] The framers of the U.S. Constitution wrote that seats in the House of Representatives "shall be apportioned among the several states within this union according to their respective Numbers…" The table below shows the populations of the 15 states in 1790.

[Insert Table]

a. The House of Representatives was to have 105 members in the 1792 apportionment. Use the above populations to apportion the seats, and justify why your method is reasonable.
b. Alexander Hamilton proposed a method of making the apportionment. Study a description of his method. Describe it using mathematical notation and carry it out using the data in the above table. Compare his method to yours.
c. George Washington vetoed Hamilton's 1792 apportionment (the first bill in U.S. history to be vetoed). What were his reasons? Note: Hamilton's method was adopted by Congress in 1850 and used until 1900.

d. Thomas Jefferson and Daniel Webster each proposed a different method of apportionment. Study a description of their methods. Describe them using mathematical notation and carry them out using the data in the above table.
e. Congress presently uses the Hill-Huntington method. Again, study a description of this method, describe it using mathematical notation, and carry it out using the data in the above table.
f. Which of the above methods is the most "fair'"? Which of the above methods can lead to unexpected, and perhaps unsettling, results? Study the Alabama paradox of 1881, and proposed criteria for the fairness of proposed apportionment methods. Explain this statement: "No apportionment method that satisfies the quota condition is free of paradoxes."

2. Here is an excerpt from an article in the *Lexington-Herald Leader*, March 10, 2009:

> The children of older fathers scored lower than the offspring of younger fathers on IQ tests and a range of other cognitive measures at 8 months old, 4 years old and 7 years old, according to a study released Monday that added to a growing body of evidence suggesting risks to postponing fatherhood.
>
> The study is the first to show that the children of older fathers do not perform as well on cognitive tests at young ages. Although the differences in scores were slight and usually off by just a few points on average, the study's authors called the findings on children of fathers ages 50 and over were "unexpectedly startling."
>
> "The older the dads were, the slightly worse the children were doing," said Dr. John J. McGrath, the paper's senior author and a professor of psychiatry at the Queensland Brain Institute in Brisbane, Australia. "The findings fit in a straight line…"
>
> By contrast, children with older mothers generally performed higher on the cognitive measures, a finding in line with most other studies…

From this article, is it reasonable to conclude that the sperm cells of older men are less healthy than the sperm cells of younger men, but the egg cells of older women are healthier than the egg cells of younger women?

3. Soda cans are often in the shape of cylinders. Let's designate the height of the can by h and its radius by r.
   a. What is the formula for the volume of the can? Why does this formula make sense?
   b. What is the formula for the surface area of the can? Why does this formula make sense?
   c. Suppose you can make a can with extremely little waste of material and you desire to make a 355 mL can (typical volume of a soda can) with the least

material, and hence the smallest possible surface area. What would the dimensions of the can be?

d. How do these dimensions compare to the commercially available soda cans? Comment on the reasons for any differences you may find.

4. [Example from http://www.fallacyfiles.org.] Consider the following reasoning (taken from the book *Carl Sagan: A Life*): "If 'experts' could always be trusted to make the right moral decision, then public participation would not be necessary. But they cannot be, and so it is."
   a. Is this a valid argument? If not, what's wrong with it?
   b. Write the argument symbolically (use propositions P: experts can always be trusted to make the right moral decision; Q: public participation is necessary) and indicate where the argument goes wrong.

5. Ask a friend to give you any three numbers x, y, and z.
   a. Create a set of numbers for which x is the mean, y is the median, and z is the mode.
   b. Describe a general procedure to solve the above problem that will work for any three numbers.

6. A piano is usually tuned according to an "equal temperament" system—the ratio of the frequencies of every pair of adjacent notes is the same. An octave on the piano is divided up into twelve steps with equal frequency ratios.
   a. The frequency of 440 Hz is assigned to the note A above middle C ("A4") on the piano. One note an octave above another has twice the frequency of the first. So, for example, the note A ("A5") that is an octave above A4 has the frequency 880 Hz. Determine the frequencies of the 13 notes from A4 to A5, inclusive.
   b. Some composers have advocated using a tuning system, in which the octave is divided into 19 equal steps. If an instrument were tuned this way, with A4 tuned to 440 Hz, what would be the frequencies of the 20 notes from A4 to A5, inclusive?

7. [Example from http://www.fallacyfiles.org.] The New York Times reported the following story about the famous statesman Benjamin Disraeli: "[S]harp-tongued Benjamin Disraeli, so the story goes, was ordered in the last century to withdraw his declaration that half the Cabinet were asses. 'Mr. Speaker, I withdraw,' was Disraeli's response. 'Half the Cabinet are not asses.'" Analyze the meaning of Disraeli's earlier statement and his "withdrawal". Why was this a clever response?

8. If you use a global positioning system (GPS) device to determine your location, the device calculates your position on the earth based upon your distance from a number of geosynchronous satellites that are orbiting the earth.
   a. How many satellites are needed to determine your position? For example, one is not enough, because there are many points that have a given fixed distance from one satellite.

b. How does the device determine its distance from a given satellite? What effect do errors in measurement have in the answer to (a)?

9. Find appropriate data and create a table showing the carbon dioxide emissions per person, and also the infant mortality rates, by country. From this data create a graph of infant mortality rate vs. carbon dioxide emissions, plotting a point for each country. Does this graph support the conclusion that high carbon dioxide emission rates are beneficial because countries with higher emission rates generally have lower mortality rates?

10. In the Powerball game of the Kentucky Lottery you choose 5 numbers from 1 to 55 in the "Pick 5" section (white balls), and 1 number from 1 to 42 in the "Pick 1" section (the red powerball).
    a. What is the probability that your choices will match all five white balls as well as the powerball in the random drawing—getting the Jackpot?
    b. Suppose a path of coins, each 1.043 inches in diameter, is strung along the 2400 miles of highway from Lexington, Kentucky to San Francisco, California. Suppose further that one of these coins is an authentic dollar coin, while the rest are all clever fakes. You get to choose one of these dollars at random. Is the probability that you choose the authentic coin greater or less than your chance of winning the Jackpot above?

11. Suppose you have a credit card that requires you to make a minimum payment of at least $25 on your balance each month, but also charges you 1% each month on the remaining unpaid balance, which is added to next month's balance. Unfortunately, you do not pay attention to your spending and end up with a balance of $3000 due. You make a firm commitment not to use this card ever again, and to dutifully send a payment of $25 each month until your debt is cleared.
    a. How many months will it take to do this?
    b. What are the terms for your own credit card(s)?

12. *It was the first time that Poole had seen a genuine horizon since he had come to Star City, and it was not quite as far away as he had expected.... He used to be good at mental arithmetic--a rare achievement even in his time, and probably much rarer now. The formula to give the horizon distance was a simple one: the square root of twice your height times the radius--the sort of thing you never forgot, even if you wanted to...* – Arthur C. Clarke, 3001, Ballantine Books, New York, 1997, page 71
    a. In the above passage, Frank Poole uses a formula to determine the distance to the horizon given his height above the ground.
        i. Use algebraic notation to express the formula Poole is using.
        ii. Make a diagram and derive your own formula for the distance to the horizon, given your height h and the radius r of the planet.
        iii. Compare your formula to Poole's; you will find that they do not match. How are they different?
    b. When I was a boy it was possible to see the Atlantic Ocean from the peak of Mt. Washington in New Hampshire. This mountain is 6288 feet high. How far away

is the horizon? Express your answer in miles. Assume that the radius of the Earth is 4000 miles. Use both your formula and Poole's formula and comment on the results. Why does Poole's formula work so well, even though it is incorrect?

13. My grandfather had ancestors who worked in the textile industry in Massachusetts as pattern makers. They were aware that, with respect to symmetries, there were only 17 different types of two-dimensional repeating patterns possible. What does this mean? Bring in some samples of wallpaper patterns from local suppliers (they often have pattern books that they are discarding). How can we classify each of these patterns into the appropriate type? Are some pattern symmetry types used more often than others?

Some References that may be Helpful in Designing a Course

- Mathematical Association of America, *Quantitative Reasoning for College Graduates: A Complement to the Standards*, http://www.maa.org/past/ql/ql_toc.html.
- Lynn A. Steen, Editor, *Why Numbers Count: Quantitative Literacy for Tomorrow's America*, College Board, 1997.
- Lynn A. Steen, Editor, *Mathematics and Democracy: The Case for Quantitative Literacy*, National Council on Education and the Disciplines, http://www.maa.org/ql/mathanddemocracy.html.
- Bernard L. Madison, Editor, *Quantitative Literacy: Why Numeracy Matters for Schools and Colleges*, Woodrow Wilson National Foundation, 2003, http://www.maa.org/ql/qltoc.html.
- Lynn A. Steen, *Achieving Quantitative Literacy: An Urgent Challenge for Higher Education*, Mathematical Association of America, 2004.
- Rick Gillman, Editor, *Current Practices in Quantitative Literacy*, Mathematical Association of America, 2006.
- Bernard L. Madison and Lynn A. Steen, Editors, *Calculation vs. Context: Quantitative Literacy and Its Implications for Teacher Education*, http://www.maa.org/Ql/calcvscontext.html.
- The Mathematical Association of America SIGMAA on Quantitative Literacy, http://pc88092.math.cwu.edu/~montgomery/sigmaaql.
- The National Numeracy Network, http://serc.carleton.edu/nnn.
- Selected Quantitative Literacy Programs in U.S. Colleges and Universities, January, 2007, http://www.stolaf.edu/people/steen/Papers/qlprogs.pdf.
- Textbooks: Quantitative Reasoning/Literacy, http://www.statlit.org/PDF/2006TextbooksQR.pdf.
- Information on courses satisfying QR requirements at our benchmark institutions, posted on the UK Gen Ed SharePoint website, http://www.uky.edu/GenEd/SharePoint_site.php.

UNIVERSITY OF KENTUCKY **ADMINISTRATIVE REGULATIONS**	IDENTIFICATION AR II-1.0-1, Parts I-III [Version B draft 2-22-09]	PAGES 1
	DATE EFFECTIVE [date]	SUPERSEDES REGULATION DATED 3/27/91, 8/20/92, 4/30/93 1/25/94, 11/24/95, 7/1/98, 8/18/98, 1/11/99, 7/27/00

PROCEDURES FOR FACULTY APPOINTMENT, REAPPOINTMENT, PROMOTION AND THE GRANTING OF TENURE

I. Introduction

A u~~U~~niversity capable of educating its students for work and citizenship in the twenty-first century must have an outstanding faculty. These procedures and criteria have been developed for the purpose of continually improving the quality and performance of the faculty in order to enhance the quality of the University's programs and permit the University to achieve its multiple missions.

The review required for promotion and granting of tenure is a summative evaluation of both the candidate's accomplishments over the entire probationary period and the candidate's future scholarly potential. It is based on the criteria set out in the *Administrative Regulations*, which require a consideration of information (e.g., the evaluations of external reviewers) that might not be available for the annual performance and tenure progress reviews.

Faculty appointments are in educational units and shall be of three types: (1) tenure-ineligible appointments; (2) tenured or tenure-eligible appointments; and (3) post-retirement appointments. (GR X-B.1)

Before appointing a faculty employee, the educational unit must ensure that it has followed the established hiring policies and practices of the college, as codified in the college rules and unit rules, and all *Governing Regulations* and *Administrative Regulations* on appointments.

II. Sources of Procedures and Criteria for Appointment and Advancement

A. Procedures

The procedures to be used in each educational unit for preparing recommendations for appointment, reappointment, promotion, and granting of tenure shall be those established by the University, the college and the faculty of the educational unit (GR VII.B). The University procedures are those established in the *Governing Regulations*, the *Administrative Regulations* and as may be further elaborated by the Provost. In addition to the procedures prescribed here, college-level procedures may be established by the dean in consultation with the

college faculty (GR VII.A.4). Additional procedures at the level of the educational unit (hereafter referred to as "the unit") are established jointly (GR VII.A.5, 6) by the faculty of the unit and by the department chair, graduate center director, school director (when the school does not contain departments), or the dean in a college without departments or schools (all referred to hereafter as the "educational unit administrator").

B. Criteria and Evidences of Activity

1. The University-level criteria and evidences of activity to be used in evaluations for appointment, reappointment, promotion, and tenure for the various faculty title series are specified in various sections of the *Administrative Regulations* as indicated below:

(a) Regular Title Series – (see AR II-1.0-1, Part V-A and V-B)

(b) Extension Title Series – (see AR II-1.0-1, Part VI)

(c) Special Title Series – (see AR II-1.0-1, Part VII)

(d) Research Title Series – (see AR II-1.0-1, Part VIII)

(e) Clinical Title Series – (see AR II-1.0-1, Part IX)

(f) Librarian Series – (see AR II-1.0-1, Part X)

(g) Adjunct Title Series – (see AR II-1.0-1, Part XI)

(h) Emeritus Faculty – (see sub-section II.C.4 below)

(i) Voluntary Title Series – Criteria for academic ranks of voluntary faculty are established upon approval by the Provost (see AR II-1.0-1, Part XIV).

(j) Lecturer Series – Unit criteria and evidences of activity, and procedures for appointment, reappointment, promotion, and merit review of Lecturers shall be developed by those educational units that employ full-time Lecturer faculty and submitted to the dean of the college for approval (see AR II-1.0-1.XIII).

2. In addition to the above, each unit's faculty may develop policy statements describing the evidences of activity in instruction, research and other creative activity, and service that are appropriate to their field(s), for use in

guiding evaluations for promotion and tenure. The departmental statement is operative in the unit upon approval by the dean (GR VII.A.6.c). If no such statements are approved for a unit, then only the specifications of the University-level regulations shall be used for evaluation.

C. Other Faculty Appointments

1. Joint Appointments – The constituent appointments relating to a joint appointment may be processed simultaneously or at different times; however, each appointment shall be processed independently and shall be considered on its own merits. An individual's academic rank, though usually the same, may differ in the constituent appointments (see GR X.A.1.b).

2. Faculty Employee Assignments at the Veterans Affairs and other academically affiliated non-UK hospitals and clinics – There are occasions when a regular faculty employee may be assigned to work at the Veterans Affairs or another non-UK hospital or clinic pursuant to an academic affiliation agreement. In such cases, salaries may be paid partially or totally by the University, or reimbursed by the affiliated institution. Faculty employees so assigned shall retain all the rights and privileges of regular faculty employees as described in the *Governing Regulations* and *Administrative Regulations* and are subject to all applicable University policies and procedures. Salary funding arrangements shall be defined by contract.

3. Named Professorships – Individuals appointed to named professorships shall meet all criteria for the rank of Professor and shall have acquired national recognition for excellence in instruction, research and other creative activity, or service in their disciplines. While normally reserved for exceptional professors, a named professorship may be granted to an exceptional associate professor. Each named professorship will provide specifically identified resources for program support of a professor, and it is ordinarily expected that a significant portion of the compensation and program support allocations will come from endowment income or extramural gifts (see AR II-1.2-3, "Policies Governing Private Funding of Academic Positions"). In exceptional circumstances (e.g., the recruitment or retention of a member of the National Academy of Science) named professorships may be submitted by the President to the Board of Trustees for approval for which funding may derive from revenue sources other than endowment income or extramural gifts.

4. Emeritus Faculty - Upon retirement, tenured faculty members shall retain their titles with the designation of "emeritus" (e.g., Professor Emeritus). Faculty employees with emeritus status are entitled to the following rights and privileges: to be included in faculty lists in University bulletins and, upon request, to be provided a mailbox in the appropriate educational unit; to be

assigned office and/or laboratory space and furnished supplies for creative work (upon request, subject to availability and approval of the concerned educational unit); to have faculty library privileges; to apply for research grants and publication subsidies funded by the Office of the Vice President for Research; to receive University identification cards; to receive parking privileges as specified in University parking policies; to participate, upon invitation by the respective unit faculty, as non-voting members of departmental or college faculties; to use University recreational facilities upon presentation of suitable identification; to purchase tickets to athletic events with previous priority status; to hold membership in the University of Kentucky Federal Credit Union; to make purchases at the University Bookstore at the employee discount rate; to participate in academic processions; to be appointed to represent the University at academic ceremonies at other institutions; to receive notices of University events; and to take part generally with the faculties in all social and ceremonial functions of the University.

5. Temporary Faculty Employees - An individual whose assigned duties and responsibilities should be completed within one year or less may be appointed as a faculty employee on a temporary basis. Temporary appointees are not eligible for tenure; however, time spent in a full-time faculty appointment on a temporary basis at the University of Kentucky may be counted as a part of the individual's probationary period should the individual subsequently be appointed to a regular, full-time position in a tenure-eligible title series. Temporary faculty employees are not eligible for University contributions toward employee benefits, but may participate at their own expense in certain University benefit programs.

(a) Visiting Faculty - The designation "visiting" before an academic title indicates that the individual who holds an appointment at an academic institution or research center has been offered a temporary appointment for an academic year, semester, summer session, or other specified term not to exceed one year. The visiting title used should be appropriate to the appointee's home base academic rank (i.e., Visiting Professor, Visiting Associate Professor, Visiting Assistant Professor, or Visiting Instructor). Where the usual academic rank or title does not appear to be suitable, the title "Visiting Lecturer" shall be used. The final decision on such an appointment is made by the Provost upon recommendation of the educational unit administrator and the dean without reference to an Academic Area Advisory Committee. A visiting appointment is typically full-time, either salaried or unsalaried. The appointment is temporary, by definition, and the visitor is not eligible for faculty benefits. A visiting faculty employee with a salaried full-time appointment is not eligible for University contributions toward employee

benefits, but may participate at their own expense in certain University benefit programs. Visiting faculty are not eligible for membership in the University Senate, but faculty membership, with or without voting privileges, may be extended to visiting faculty by the faculty of the educational units to which they are ~~assigned~~ academically appointed. Visiting faculty are not eligible for tenure; however, time spent in a full-time appointment on a visiting basis at the University of Kentucky may be counted as a part of the individual's probationary period should the individual subsequently be appointed to a regular, full-time position in a tenure-eligible title series.

(b) Part-time Faculty - Part-time faculty employees have an official faculty appointment, receive a salary, and participate substantially, but less than full-time, in the program of an educational unit. The dean makes the final decision on appointments of ~~a~~ part-time faculty employees ~~member~~ at any rank. ~~is made by the dean, without reference to an Academic Area Advisory Committee~~. The appointment shall be for one year or other stated period not to exceed one year, subject to renewal. Appointees are not eligible for tenure, sabbatical leave, or membership in the University Senate. Appointees are not eligible for University contributions toward employee benefits, but may participate at their own expense in certain University benefit programs. Faculty membership, with or without voting privileges, may be extended to part-time faculty employees by the faculty of educational units to which they are ~~assigned~~ academically appointed.

III. The Comprehensive Tenure Review

A tenure-eligible faculty employee is entitled to one (1) comprehensive tenure review, which shall be completed no later than the end of the next-to-last year of the probationary period. A comprehensive tenure review shall also be extended to a new faculty employee whose initial appointment at the academic rank of Associate Professor or Professor also proposes immediate tenure. In addition, a comprehensive tenure shall be extended to a new faculty employee whose initial tenure-eligible appointment stipulates Professor (without tenure) and whose educational unit initiates a tenure review, and not a non-renewal of appointment, in the first year of service.

In a comprehensive tenure review, the dossier is reviewed at all levels of the University (educational unit, college advisory committee and dean, academic area advisory committee and Provost, and the President), irrespective of the judgment, favorable or not, at the previous level of review. Considerable deference in tenure cases shall be shown by the Provost to the judgments emanating from the college, especially in cases where those college-level judgments (unit faculty, educational unit administrator, college advisory committee and dean) are nearly unanimous, either for or against the granting of tenure. Final action by the Board of Trustees,

upon the recommendation of the President, shall result either in the granting of tenure and, where appropriate, promotion to the rank of Associate Professor, or the issuance of a terminal (one-year) reappointment contract. The exercise of a comprehensive tenure review shall not affect a faculty person's right to appeal a tenure decision on the grounds of procedure, privilege and/or academic freedom, as provided below (AR II-1.0-1.X.B), or to appeal as provided in the *Governing Regulations* (GR I.I).

IV. Tenure Consideration During the Terminal Contract Year

A. By waiving his or her right to a comprehensive tenure review in the next-to-last year of the probationary period (see section V.A.4. below), a faculty employee forfeits his or her right to a comprehensive tenure review. However, the possibility of consideration for tenure during the terminal contract year, subject to the terms stated in section IV.B, immediately below, is not abridged.

B. After consultation with the unit faculty, an educational unit administrator may initiate a request to the dean for tenure consideration on behalf of a faculty employee who was placed on terminal contract either after a comprehensive tenure review or after waiving his or her right to a comprehensive tenure review (see section V.A.4. below). If the dean finds insufficient evidence to warrant a new tenure consideration, the dean shall deny the request and notify the educational unit administrator that a terminal year consideration of tenure shall not be initiated. If the dean determines that the evidence in support of a favorable tenure decision has substantially strengthened, the dean may grant the request and authorize the educational unit administrator to initiate the review.

Once initiated, the terminal year tenure review shall be conducted in accordance with the procedural steps enumerated in sections V-X below, except that the review process shall be stopped and the specified parties notified, if the dean or Provost renders a negative judgment on the tenure proposal. Prior to making his or her judgment, the dean and Provost shall obtain a written recommendation from the specified faculty advisory committee (see sections VI.B. and VII.B.1 below).

V. Procedural Steps Occurring at the Level of the Educational Unit

A. Initiating the Review Process

1. Recommendations for appointment, reappointment, terminal reappointment, joint appointment, post-retirement appointment, ~~non-renewal of appointment~~decision not to reappoint, promotion and the granting of tenure, concerning faculty of any rank or title series, shall be initiated by the educational unit administrator.

2. Reviews for promotion or granting tenure shall be completed in time for the affected faculty employee to be notified of the result in accordance with GR X.B.1(e).

3. During the second year at the rank of ~~i~~Instructor, the individual shall be considered for promotion or terminal reappointment effective in the third year, unless the individual requests in writing that such not be done because of the intent to resign or willingness to accept a terminal reappointment.

4. An assistant professor shall be considered for promotion and tenure no later than ~~who is in the sixth or~~ next-to-last year of a probationary period ~~shall be considered for promotion and tenure~~, unless the individual requests in writing that such consideration not be done because of the intent to resign or willingness to accept a terminal reappointment.

5. An associate professor without tenure may be considered for tenure at any time prior to the next-to-last year of the stated probationary period. However, a tenure-eligible associate professor shall be considered for tenure no later than the next-to-last year of a probationary period, unless the individual requests in writing that such not be done because of the intent to resign or willingness to accept a terminal reappointment.

6. A tenure-eligible professor shall be considered for tenure in the first half of a one-year probationary period, unless the individual requests in writing that such not be done because of the intent to resign or willingness to accept a notice of non-renewal of appointment.

B. Consultations Conducted by the Educational Unit Administrator

Individuals who have defined or assigned administrative roles and participate in the decision-making at or above the level of educational unit administrator shall not be involved as consulted faculty employees in the educational unit in which they hold an academic appointment.

C. Consultation with Applicants and New Faculty

1. Either before or at the time of interview of an individual for a faculty appointment, the educational unit administrator shall inform the individual about those parts of the *Governing Regulations* and the *Administrative Regulations* that deal with appointment, reappointment, promotion and tenure and shall provide access to these regulations as requested. At the time an appointment is offered, an individual shall be informed of the criteria for academic ranks by the educational unit administrator.

2. The educational unit administrator shall inform all new faculty employees (within one month of the beginning of their employment) of the existence and locations of the following University documents: (a) the *Governing Regulations*; (b) the *Administrative Regulations*; (c) the *Rules of the University Senate*, in particular the Faculty Code; (d) the rules and procedures of their college; (e) the rules and procedures of their educational unit; and (f) the *Student Rights and Responsibilities*. Access to any of these documents shall be provided by the educational unit administrator as requested.

D. Consultation with the Faculty Candidate for Promotion or Tenure

Prior to the initiation of a recommendation concerning tenure for an individual during the next-to-last-year of a probationary period, the educational unit administrator shall consult with the faculty employee as to whether the individual waives the exercise and thereby stops the consideration. Any such waiver shall be in writing to the dean and the dean shall offer the individual a terminal reappointment. An assistant professor or associate professor with tenure whose promotion to a higher rank has not been considered by an Academic Area Advisory Committee for a period of six years may request such consideration by September 1 of the seventh or a subsequent year. The educational unit administrator shall make the individual aware of the option to submit such a request.

E. Assembly of the Dossier

1. The educational unit administrator is responsible for the assembly of a dossier associated with a faculty personnel recommendation. The dossier is prepared from materials in the Standard Personnel File (see below) and from additional materials supplied by the educational unit administrator and faculty employee. The dossier contents necessary for most faculty personnel actions other than annual faculty performance review are specified in Appendix II (Dossier Contents.) In the preparation of a joint appointment dossier, the educational unit administrator in the secondary department shall develop the dossier for the secondary appointment.

2. All written judgments from consulted individuals shall be obtained only through the request of the educational unit administrator.

3. Pursuant to Kentucky Revised Statutes KRS 61.878, the written judgments of persons consulted in connection with appointments, promotions, and tenure decisions are not confidential, and the writers of such judgments shall be notified ~~accordingly~~when their judgments are solicited.

4. No materials will be made part of a faculty employee's dossier other than those described above and specified in Appendix II (Matrix of Dossier Contents), except with the written permission of the faculty employee under review.

F. The Standard Personnel File

1. There shall be one Standard Personnel File maintained for each faculty employee. The Standard Personnel File contains the Notice of Academic Appointment and Assignment form, curriculum vitae, the teaching credentials certification form and, if appropriate, the teaching credentials justification form, and transcripts of academic work leading to advanced degrees. This personnel file also contains many of the crucial materials, particularly evaluation materials, needed for or taken from the dossier, which are defined below. The file contains Distributions of Effort forms, faculty merit or other evaluation reports, evaluations prepared by committees and those of educational unit administrators, and all other professional evaluation reports. The file shall also contain materials related to responsibilities that the faculty employee has to governmental or other agencies. The file contains regularly updated assessments of effectiveness in instruction, research and other creative activity, and service.

2. The Standard Personnel File shall be updated regularly and in particular completed by actions of the educational unit administrator, and also actions of the faculty employee. The faculty employee shall update his or her curriculum vitae annually and such other documents as he or she deems appropriate. The educational unit administrator shall update files as necessary to keep them reasonably current.

3. Unsolicited materials relevant to professional function may be included in the Standard Personnel File provided the faculty employee sees them and is offered the opportunity to document his or her response to them.

4. The Standard Personnel File shall be kept in the office of the educational unit administrator or in the office of the dean as deemed appropriate for each educational unit by the dean. No other Standard Personnel File shall be kept. The Standard Personnel File shall always be available to the faculty employee and to such other persons who he or she authorizes in writing to see that file. The Standard Personnel File is always accessible to the educational unit administrator or higher administrative officer who is responsible for its maintenance and to such administrators superior to him or her who request access to the file.

5. The Standard Personnel File may contain communications to or from the faculty employee, solicited or unsolicited letters or memos relating to professional function, which are not relevant to consideration for promotion or the granting of tenure.

F. Consultation with the Faculty in the Educational Unit

1. An educational unit administrator shall consult with appropriate faculty employees of the unit in preparing recommendations for appointments, reappointments, promotion and/or the granting of tenure, as delineated above, such consultation being in accordance with *Governing Regulations* section VII.B.5. See also Appendix I (Matrix of Consultations and Written Judgments).

2. The following provisions apply to the solicitation of outside letters by the educational unit administrator:

(a) A promotion or tenure dossier shall include a minimum of six (6) letters of evaluation from qualified persons outside the University. These outside letters are crucial in promotion and tenure reviews.

(b) The letters from outside of the University shall be obtained by the educational unit administrator directly from appropriately qualified persons selected in part from, and in part independent of, suggestions of the individual being considered for promotion or tenure.

(c) At least four (4) of the letters from outside of the University shall come from reviewers selected by the educational unit administrator independent of the candidate for promotion or tenure.

(d) Outside letters from scholars at research-oriented universities shall be given the most serious consideration, except in promotion and tenure reviews involving faculty employees whose assignments do not include significant research responsibilities. Where deemed appropriate by the unit administrator, letters from persons affiliated with prestigious non-academic institutes, centers or specialized schools may be used.

(e) The letters from outside of the University shall be accompanied in a promotion and/or tenure dossier by a written statement by the educational unit administrator indicating for each letter whether or not the name of the respondent had been suggested by the individual under consideration and, if known, whether or not the respondent had been a previous faculty colleague of the individual.

3. The educational unit administrator shall notify the consulted faculty employees when the dossier is available for their review. All letters from outside of the University received shall be included in the dossier and made available to consulted faculty employees prior to their providing individual written judgments to the educational unit administrator. The consulted faculty employees shall be expected to read and consider the contents of the dossier, including the outside letters, on matters of appointment, reappointment, promotion and/or the granting

of tenure, before providing individual written judgments to the educational unit administrator.

G. Recommendation of the Educational Unit Administrator to the College Dean

The educational unit administrator shall add to the dossier all written judgments received from the unit faculty, and his or her written recommendation, and forward ~~the~~ that completed dossier ~~with the educational unit administrator's recommendation~~ to the dean. Where disagreement occurs between the educational unit administrator and the consulted educational unit faculty concerning a recommendation, the educational unit administrator shall report this difference with adequate documentation to the dean and also notify the consulted unit faculty regarding such action.

VI. Procedural Steps Occurring at the Level of the College

A. Completeness of the Dossier

The dean shall review the dossier for completeness (see Appendix II) and procedural compliance. If the dossier is not complete or procedurally compliant, the dean shall direct the educational unit administrator to secure the missing materials or procedural compliance and, as appropriate, to allow the consulted unit faculty to examine the new materials and contribute new consultative input to the educational unit administrator or to submit new written judgments.

B. Consultation with College Advisory Committee on Appointment, Reappointment, Promotion and Tenure

1. Each college with at least two educational units (e.g., departments, schools and graduate centers) within the college shall have a college advisory committee comprised of tenured faculty members from the college faculty, excluding educational unit administrators and assistant/associate deans. The college advisory committee shall be concerned with policy matters on, and individual cases related to, faculty appointment, reappointment, promotion and the granting of tenure. Its members can be elected by the college faculty, or appointed by the dean after consultation with an appropriate faculty body of the college as documented in the College Rules. Upon prior recommendation by the college faculty and approval of the dean and the Provost, a large college comprised of multiple departments representing a diversity of academic disciplines may establish multiple college advisory committees. Such an arrangement shall be documented in the College Rules.

2. Prior to making a recommendation or decision on terminal reappointments or ~~non-renewals of appointment~~decisions not to reappoint, the dean shall provide the dossier to the college advisory committee, and obtain its written advice.

3. The dean shall also obtain a written recommendation from the college advisory committee whenever an assistant professor, associate professor, or professor is considered for promotion and/or tenure.

4. It is recommended that ~~such advice~~ a written recommendation from the college advisory committee also be sought for initial appointments at the associate professor or professor rank.

5. A member of a college advisory committee or an Academic Area Advisory Committee shall be excluded from any participation in that committee's consideration of a recommendation initiating from the educational unit in which the faculty employee holds an academic appointment. He or she shall participate fully in the unit-level evaluation of those candidates. Persons shall not serve at the same time as a member of both a college advisory committee and an Academic Area Advisory Committee.

C. Actions Taken by the Dean

1. The dean of a college shall make the final University decision to approve or disapprove a recommendation for those actions specified in Appendix III (Matrix of Authority of the Dean) as being delegated to the dean's final authority. The dean shall ~~inform~~ notify the candidate in writing of the action taken, with a copy of that notification to the educational unit administrator, and as specified in Appendix III the dean shall communicate the action taken through the Provost to the President to be reported to the Board of Trustees.

2. If a dean disapproves an educational unit administrator's recommendation for reappointment at any rank and offers a terminal reappointment instead, but the tenured members of the unit faculty reaffirm their positive judgment by majority vote and the educational unit administrator reaffirms his or her positive recommendation for reappointment, the Provost shall refer the matter to the pertinent Academic Area Advisory Committee.

3. In actions for which the dean is not delegated final approval (see Appendix III), the dean shall obtain, as appropriate, the written recommendation from the college's advisory committee, and then act upon the recommendation from the educational unit administrator. If the dean approves a positive recommendation or overturns a negative recommendation of the educational unit

administrator, the dean's written recommendation and the written recommendation of the college advisory committee, shall both be added to the dossier and forwarded to the Provost.

4. In cases involving a comprehensive tenure review, the dean shall first obtain the written recommendation from the college's advisory committee on the tenure recommendation from the educational unit administrator. The dean shall then reach a judgment on the recommendation from the educational unit administrator. Finally, the dean shall add to the dossier both the written recommendation of the college's advisory committee and the dean's written recommendation, and forward the dossier to the Provost.

VII. Procedural Steps Occurring at the Level of the Provost

A. Completeness of the Dossier

The Provost shall ensure that the dossier is complete and procedurally compliant. (Appendix II) If the dossier is not complete or if there is procedural noncompliance, the Provost shall direct the dean to secure the missing materials or the procedural compliance and, as appropriate, to allow the consulted unit faculty, the educational unit administrator, the college advisory committee, and the dean to examine the materials and contribute new consultative input or to submit new written judgments or recommendations.

B. Recommendations from Academic Area Advisory Committee

1. Academic Area Advisory Committee

(a) The Provost shall forward the dossier to the appropriate academic area advisory committee for all cases involving appointment at, or promotion to the rank of Associate Professor or Professor, or the granting of tenure. In those cases that have not received near-unanimous support from all lower-level reviewers (external letter writers, unit faculty and educational unit administrator, college advisory committee and dean) the Provost shall require a written evaluation from the academic area advisory committee. The academic area advisory committee may elect to submit to the Provost a written evaluation on any case assigned to that committee. If the Provost is inclined to render a negative judgment on a case that has received near-unanimous support from all lower-level reviewers, but which has not been recommended on by an academic area advisory committee, the Provost shall first obtain a written recommendation from an academic area advisory committee.

(b) For cases in which the Provost has received a dean's recommendation for terminal reappointment of an individual, in contrast to the majority vote of the tenured faculty and educational unit administrator's concurrence for reappointment, the Provost shall refer the matter to the appropriate academic area advisory committee for an independent written evaluation. The committee in its deliberations shall address itself to the individual's scholarly potential, ability as an instructor, and other professional qualifications indicative of a probable eventual tenured appointment and shall submit a written recommendation to the Provost.

(c) An academic area advisory committee may request the written advice of an ad hoc committee (appointed by the Provost) for further evaluation before returning the dossier with the ad hoc committee's written advice, and the academic area advisory committee's written recommendation, to the Provost.

C. Actions Taken by the Provost

1. The Provost shall make the final University decision to approve or disapprove a recommendation concerning visiting title series faculty and promotion to Senior Lecturer. The Provost shall communicate approval through the President to the Board of Trustees and convey the substance of his or her final action (approval or disapproval) in writing to the dean. The dean shall notify the candidate in writing with a copy of that notification to the educational unit administrator.

2. For cases in which the Provost has received a dean's recommendation for terminal reappointment of an individual, in contrast to the majority vote of the tenured faculty and educational unit administrator's concurrence for reappointment, the Provost shall refer the matter to the pertinent academic area advisory committee and request a written recommendation. After reviewing the dean's recommendation, the material forwarded through the dean from the educational unit and the written recommendation from the Academic Area Advisory Committee, the Provost shall either approve the proposal for terminal reappointment and report the action through the President to the Board of Trustees and notify the dean in writing, or disapprove and stop the terminal reappointment proposal and ~~inform~~ notify the dean in writing of the Provost's decision for reappointment. The dean shall notify the candidate in writing of the Provost's respective decision, with ~~a copy of~~ that notification by the dean being copied to the educational unit administrator.

3. For cases involving the consideration of initial appointment (with or without tenure), reappointment, promotion, or the granting of tenure in the terminal year of a probationary period, the Provost shall review the dossier and all recommendations and either forward a positive recommendation to the President of the University, or stop the evaluation process and inform the dean in writing of that decision. The dean shall notify the candidate in writing with a copy to the educational unit administrator.

4. In cases involving a comprehensive tenure review, the Provost shall first consider the written recommendation, if any, from the appropriate academic area advisory committee (see section VII.B.1). The Provost shall then reach a judgment on the recommendation from the dean. Finally, the Provost shall add to the dossier both the written recommendation, if any, of the academic area advisory committee and the Provost's written recommendation and forward the dossier to the President.

VIII. Procedural Steps Occurring at the Level of the President

The President shall either approve the Provost's recommendation and make a positive recommendation to the Board of Trustees for final action or disapprove and stop the tenure review and inform the Provost in writing. The Provost shall inform the dean in writing, who shall notify the candidate in writing with a copy of that notification to the educational unit administrator.

IX. Procedural Steps Occurring at the Level of the Board of Trustees

A. The Board of Trustees shall take final action on the proposal by approving or disapproving the President's recommendation. The President, through the Provost, shall inform the dean in writing of the Board's action. The dean shall notify the candidate in writing with a copy of that notification to the educational unit administrator.

B. The Notice of Academic Appointment and Assignment form constitutes the official appointment record. With the exception of salary, the precise terms and conditions covering each appointment shall be stated in writing on that form. The appointment, including salary, becomes final when it is approved by or reported to the Board of Trustees.

Notice of reappointment for tenure-eligible faculty shall be processed in a timely manner, preferably at least three months before the renewed appointment begins. It shall be the responsibility of the Provost to ensure compliance with this regulation.

C. The ending date of the probationary period in a tenure-eligible appointment shall be set by the dean prior to signing the initial Notice of Academic Appointment and

Assignment form and shall not exceed seven years from date of initial appointment, except as permitted in GR X.B.1(c). Previous full-time service with the rank of Instructor or higher at another institution of higher learning may be counted as part of the probationary period as negotiated between the appointee and the dean prior to initial appointment. Time spent in a full-time faculty appointment on a visiting or temporary basis at the University of Kentucky may be counted as a part of the individual's probationary period, as negotiated between the appointee and the dean, should the individual subsequently be appointed to a regular, full-time faculty position in a tenure-eligible title series.

X. Procedural Steps Involving a Negative Recommendation to Reappoint, Promote or Grant Tenure.

A. Whenever a recommendation is disapproved at any level, this fact shall be reported back to the preceding level(s) and an opportunity provided for a thorough discussion of the recommendation among the concerned parties.

B. Any related appeal(s) to the Provost concerning procedural matters or privilege or to the University Senate Advisory Committee on Privilege and Tenure concerning procedural matters, privilege, or allegations of violation of academic freedom shall be initiated in writing by the faculty employee within 60 days after being notified in writing by the dean of the disapproval of the recommendation to reappointment, promote or grant tenure. When such an appeal to the University Senate Advisory Committee on Privilege and Tenure has been initiated in writing by a faculty employee, the chair of that committee shall inform the appropriate dean and Provost of that development.

C. ~~It is University policy not to provide~~ require the final decision-maker to provide ~~written reasons in cases of non-renewal of appointment.~~ A faculty employee may request a meeting with the dean to ~~However, upon the faculty employee's request, the dean of the college may meet with the faculty employee and~~ discuss informally the circumstances surrounding the non-renewal of appointment, the denial of promotion and/or the granting of tenure. If the faculty employee is not satisfied with this conference, a related conference with the Provost may be requested.

XI. Final Disposition of the Dossier

At the conclusion of processes leading to negative decisions about appointments, reappointments, promotions or the granting of tenure, the dossier shall remain intact during the sixty (60) day period for filing an appeal, or, in cases where a formal appeal has been filed, until such time that a final decision has been rendered. Thereafter, the dossier shall not be retained, although all evaluative letters and reports or reviews contained in the dossier shall be added to the faculty employee's Standard Personnel File. Representative examples of research and other creative activity included in the dossier as it ~~is~~ was ~~forwarded~~ developed shall be returned to the

faculty member for his or her retention. The teaching portfolio, or teaching materials submitted by the faculty employee, shall also be returned to the faculty employee.

XI. Appendices

A. Appendix I – Matrix of Consultation and Written Judgments
B. Appendix II – Dossier Contents
C. Appendix III – Matrix of Authority of the Dean

UNIVERSITY OF KENTUCKY	IDENTIFICATION	PAGE
	AR 3:14~~II-7.0-1~~	1
ADMINISTRATIVE REGULATIONS DRAFT	DATE EFFECTIVE: 7/1/2009	TO SUPERSEDE REGULATIONS: AR II-7.0-1; AR II-7.0-3; AR II-7.0-4; AR II-7.0-8; AR II-7.0-9; AR II-7.0-10; AR II-7.0-11; AR II-7.0-12

PRACTICE PLANS FOR HEALTH SCIENCE COLLEGES AND UNIVERSITY HEALTH SERVICES
(Approved by the Board of Trustees)

I. Introduction

This Administrative Regulation authorizes faculty practice plans ("Plan(s)") for all University health science colleges, currently the Colleges of Dentistry, Health Sciences, Medicine, Nursing, Pharmacy, Public Health, and the University Health Services ("college(s)"). This Administrative Regulation establishes the base plan (i.e. minimum requirements) for the Plan. Each college will complete an addendum ("College Addendum") to describe the details for the college's individual Plan and to identify any differences from the basic plan requirements. Each College Addendum shall be the same or substantially the same as the template attached hereto as Appendix "A" and incorporated by reference herein. This Administrative Regulation, along with each College Addendum, constitutes the complete Plan for each college or service.

Authority to approve College Addenda is hereby delegated jointly to the dean of each respective college, the Provost, and the Executive Vice President for Health Affairs (EVPHA).

The purpose of the Plan is to facilitate proper functioning of the instruction, research, and service programs of the University, consistent with the integrity and responsibilities of the University. Income generating activities of the members of the Plan that relate to their professional expertise or credentials are facilitated by their employment at the University. The Plan is created to ensure accountability and legal compliance of these activities. The operation of the Plan shall be evaluated periodically with the underlying principles hereinafter set forth as guides.

This Administrative Regulation supersedes and takes precedence over any other regulations related to professionally generated income provided by a faculty member in any~~one~~ of the health science colleges for such income that is determined by the college to be included in the Plan.~~consulting services of a clinical nature, as determined by the college, provided by a faculty member in any of the health science colleges.~~ Except for reporting and disclosure obligations set forth in Section XI of this regulation, professionally generated income determined by a college not to be part of the Plan, as well as University-approved entrepreneurial activities and royalties associated with income from intellectual property, shall be governed by applicable University regulations or policies. (See, *Administrative Regulation II-1.1-1*, Faculty Consulting and Overload, and *Administrative Regulation II-1.1-3*, Intellectual Property Disposition and Administrative Regulation)

II. Scope

A. The Plan establishes policies and general procedures relating to compensation for services rendered by all members of the Plan, regardless of specialty. Members of the Plan shall include all faculty employees in all title series, regardless of period of appointment, and physicians employed by University Health Services, unless otherwise determined by the college. For purposes of this regulation, the term "faculty" includes physicians employed by University Health Services. The only exception will be those faculty members who were at the University at the time the prior Plan for his or her college was originally established and chose not to join. Individuals in non-faculty positions or staff in adjunct faculty appointments may not be members of the Plan.

B. The Plan is applicable to all services provided by Plan members incident to the care of patients and to all other activities which are a part of the health care programs of the University. Such services and activities include compensation, income and payments (direct or in kind, and whether characterized as fees, retainers, or otherwise) for professional services rendered or to be rendered, including, but not limited to, those relating to: (a) the diagnosis, treatment, and evaluation of patients; (b) the provision of therapeutic products for patients or others; and, (c) consultation with patients. Additional income to be included in the Plan may be determined by each college in its College Addenda.

C. Royalty income or other compensation resulting from intellectual property owned and licensed by the University is exempt from the Plan as it is addressed by Administrative Regulation II-1.1-3. University-approved entrepreneurial income is exempt from the Plan.

D. Any professionally generated income that is not included by a college in its Plan is governed by AR II-1.1-1, Faculty Consulting and other Overload Employment.

III. Definitions

A. The "Fund" means the Fund for Advancement of Education and Research in the University of Kentucky Medical Center, a non-profit corporation organized in 1959 under the laws of Kentucky to promote, advance, and support the educational, research, and other purposes of the University of Kentucky Medical Center. The Fund shall be the Fiscal Entity for each Plan, unless otherwise specified in an individual College Addendum.

B. The "Board of Directors of the Fund" means the Board of Directors of the Fund for Advancement of Education and Research in the University of Kentucky Medical Center. The Board of Directors of the Fund shall include representation from each Plan for which the Fund serves as Fiscal Agent.

C. The "Practice Plan Committee" means the committee ~~of each college elected by the Plan members and chaired by the dean of the college~~ as provided in Section X of this regulation.

D. The "Division or Department" means all approved divisions or departments in which the Plan members are employed.

E. The "Plan Services Account" means that separate depository account to be established as provided in Section VI and VII of this regulation.

F. The "Board of Trustees" means the Board of Trustees of the University which by law is the governing board of the institution.

G. The "Fiscal Agent" shall be the 501(c)3 Corporation maintaining the funds of each Plan.

H. The "Billing Entity" shall be that organization billing third parties for services rendered which are subject to each Plan.

I. The "Plan Member Documents" mean the documents by which members are enrolled to bill for services subject to each Plan.

J. The "College Addendum" means the document, approved as an addendum to this regulation, by which the college may add more detail or certain options not specified herein.

IV. Underlying Principles

A. Clinical services are provided by the University's health care programs because they are essential to the instruction, research and service missions of the University, and to the proper use of the facilities and professional skills, and to reinforce health care resources in local communities throughout the Commonwealth.

B. The kinds and volume of services provided shall be determined by the needs of the instruction, research, and service missions of the University. Income derived from the provision of patient care is essential to carrying out these missions and in this sense is properly considered an appropriate product of their operation.

C. Patient care facilities shall be used exclusively for activities which are part of the University's instruction, research, and service programs.

D. The professional interests of Plan members should be concentrated in academic activities. Arrangements creating financial incentives for Plan members that would tend to inappropriately divert or dilute their concentration on instruction, research, and service program responsibilities are not consistent with the mission of the University.

E. Each Plan member can rightfully expect:

1. Facilities, materials, and support needed for instruction and research;

2. Opportunity to maintain and develop clinical skills;

3. Compensation for work on a basis which recognizes the Plan member's responsibilities, competence, and productive effort and which is reasonably in line with compensation which the faculty member could obtain elsewhere in an academic environment; and,

4. Professional liability coverage, to the extent legally permissible, through the University's self-insurance program for clinical activities conducted in accordance with and accounted for through the Plan. The definition of "clinical activities" for coverage purposes shall be set, from time to time, by the UKHealthCare Risk Management Committee or its successor in responsibilities.

F. It is the University's responsibility to assure that the level of compensation for Plan members is competitive with other nationally-recognized academic medical centers and adequate to attract and maintain a strong, competent faculty. Responsibility should rest with the University not only for ensuring that initial and subsequent levels of remuneration are adequate, but also for ensuring that such levels are not excessive. Through budgetary and related actions, the University should, to the extent possible and permissible, assure the Plan member that the member's total remuneration from all sources shall be in accord with a predetermined level which is fixed consistent with adequacy for the particular profession and which is periodically reviewed.

G. Payments received for services rendered by Plan members shall be used only for remuneration of such faculty, in such manner and in such amounts as determined by the Board of Trustees, and for such other purposes as defined in Section VII of this regulation.

H. With respect to each member of the Plan the amount of total compensation shall be established by the Board of Trustees in the operating budgets of the University. The manner and extent to which compensation from the Plan's Services Account is combined with other compensation shall be reviewed and approved annually by the EVPHA and the Provost, with the objective of providing stability of total compensation without impinging on the freedom of Plan members to apportion their time and efforts among instruction, research, and service activities as determined by their interests and program responsibilities.

V. Setting of Charges for Health Professionals' Services

Standard schedules of charges for services are subject to review by the Practice Plan Committee of each Plan and approval by the dean of the college and EVPHA and shall be the general basis for assessing such charges to patients. However, the amount of charges may be adjusted on a case by case basis as proposed by the Plan member rendering the services with approval by the dean if variation from standard charges is deemed to be warranted by the circumstances and not prohibited by law, regulation, or applicable contract.

VI. Billing and Collection of Charges for Health Professionals' Services

A. Charges for services rendered by Plan members shall be billed by the Billing Entity at the time services are provided or subsequently, with such charges and billings being appropriately coordinated with charges and billings for other services to patients. Billings and collection of all amounts shall be handled by a billing system and Billing Entity approved by the University. Amounts collected for combined charges for services and undesignated receipts from or on behalf of individual patients who receive health care services shall be applied on appropriate bases of pro ration to payment for the various entities providing services. Major problems relating to collection from patients of charges for services shall be handled in a manner that is subject to consultation with the ~~concurrence of~~ the Plan member rendering the services to the patients, subject to applicable legal, regulatory and contractual requirements.

B. Any payments, other than compensation as established by the Board of Trustees, which are received by Plan members for professional services within the scope of the Plan, shall be transmitted immediately~~on a current basis~~ to the University for inclusion with other funds collected for services of the Plan members.

C. All funds collected or received by any person or entity, including the University, for Plan members' services shall be collected and received in trust for the Fiscal Agent. Such funds, if not received directly by Fiscal Agent, shall be segregated upon receipt and shall be paid over to the Fiscal Agent for deposit into a separate account of the Fiscal Agent for each individual Plan managed by that Fiscal Agent. Each separate account shall be designated and known as the Plan Services Account of the individual Plan.

VII. Use of Funds Deposited in the Plan Services Account

As a standing policy, the Fiscal Agent, shall use and expend all monies and funds deposited in the Plan Services Account to the extent available for the following purposes:

A. Compensation to members of the Plan in such amounts as may be necessary to provide the difference between other University compensation and the total compensation as established by the Board of Trustees in the operating budget of the University. The operating budget shall show the amounts to be paid from the Plan Services Account, which amounts are dependent upon the availability of funds.

B. Such other purposes as from time to time may be recommended to the Board of Directors of the Fiscal Agent by the Practice Plan Committee of each Plan provided, however, that such funds may not at any time be used for payment to Plan members of income in excess of the total compensation established for the individual members thereof by the Board of Trustees in the operating budget of the University.

VIII. Plan Administrator and Budget

A. The dean of each college, in consultation with the Plan members, shall appoint a Plan administrator. The Plan administrator will be responsible for the day-to-day operation of the Plan and its funds and for the preparation of reports to the dean and the Practice Plan Committee on the financial status of the Plan. The Plan administrator will also be responsible for preparing the annual budget of the Practice Plan.

B. The annual budget shall include funding for the following:

1. Account(s) to enhance college programs;

2. Estimated administrative expenses to manage the Practice Plan;

3. Expenses associated with program implementation;

4. Operating expenses to support Plan member efforts to secure and manage services and contracts;

5. Grant(s) to the University to provide for payment of salary funding of all faculty lines to the extent supported by Practice Plan income and support for staff involved in assisting faculty in generation of professional income; and

6. Contingency reserve to meet potential shortfalls.

C. The proposed annual budget for the Plan shall be submitted by the dean to the Practice Plan Committee for review and comment prior to submitting to the Board of Directors of the Fiscal Agent for approval at its annual meeting.

IX. Provisions for Faculty Salary Supplemental Compensation Program under the Practice Plan

A. Objectives

The specific objectives of the salary supplementation plan include the following:

1. To increase faculty income in addition to that available through State support to the college in an effort to remain competitive with other academic institutions in the recruitment and retention of outstanding faculty;

2. To increase faculty incentive to participate in income-producing activities which are beneficial to the college, the University, and the State;

3. To maintain primary emphasis on the teaching and research programs of the college; and

4. To use professional practice by faculty as a vehicle for clinical training.

B. Basis

The program is based on a system allowing the dean and chairs to reward faculty members for unusual productivity and effort. The rewards shall be derived from income generated by faculty activity but shall not necessarily be directly related to the fiscal productivity of each individual. The system shall allow maintenance of the college balance without overcompensation for one segment of activity to the exclusion of other equally important commitments.

C. Applicable Provisions

1. Supplemental compensation and benefits shall be estimated for the ensuing fiscal year during the annual operating budget process; the amount budgeted shall be included as a separate nonrecurring, supplemental budget item. This supplemental budget shall be submitted to the Board of Directors of the Fiscal Agent and the Board of Trustees for approval as part of the annual operating budget. The appropriation of funds for expenditures shall be equal in amount to additional income to the University provided by a grant by the Board of Directors of the Fiscal Agent to the University specifically for the purpose of financing the supplementary operating budget. Such a grant shall be in addition to that made by the Fiscal Agent in support of salaries provided in the basic operating budget of the college.

2. Fiscal Agent grants for the purpose of supplemental compensation shall constitute non-recurring funds, and approval of the supplementary operating budget based thereon shall not constitute an increase in the budget base of the college. Unless otherwise specified in the College Addendum, supplemental compensation payable to participating individuals in accordance with approved supplementary operating budgets shall be distributed quarterly by the University based on equity determinations on September 30, December 31, March 31, and June 30 of each fiscal year. Supplemental compensation shall be paid at the end of the month following the equity determinations. Individuals no longer in the employment of the University are eligible to receive supplemental compensation

at the first distribution following termination based on equity determinations through the last day of their employment, as collected through the last day of the quarter in which the faculty member resigns.

3. The EVPHA and the Provost are delegated the authority to approve the percentage of net revenue to be allocated for supplemental compensation. The amount of the grant to the University by the Fiscal Agent for the purpose of supplemental compensation or increases to individual discretionary accounts within the Fund shall be calculated quarterly based on the approved percentage to individual faculty members on the basis of net revenues collected from professional fees and other sources.

4. Criteria utilized in determining the percentage to be allocated shall be submitted by the dean of the college for review by the Plan members prior to preparation of the supplementary operating budget. Changes in the criteria may be recommended to the practice plan committee and others, as appropriate, by the dean if necessary to reconcile differences between the actual figures and the projected supplemental budget.

5. Unless otherwise specified in the College Addendum, disbursements for the first quarter of a fiscal year shall be based on the pro rata revenues collected from July 1 - September 30th. Disbursements for the second quarter of a fiscal year shall be based on pro rata revenues collected from October 1 - December 31st. Disbursements for the third quarter of a fiscal year shall be based on pro rata revenues collected from January 1 - March 31st. Disbursements for the fourth quarter of a fiscal year shall be based on pro rata revenues collected from April 1- June 30th.

6. Supplemental compensation and increases to individual discretionary accounts are predicated on and subject to pro rata reductions based on: (a) projected availability of cash on the disbursement dates; (b) availability of net revenues to meet projected annual budget; (c) a projected positive cash balance at the end of the fiscal year; and (d) sufficient projected fund balance to have allocated fund balance to cover Accounts Receivable in accordance with University policy. To the extent distributions have been made for supplemental compensation and increases to individual discretionary accounts, this constitutes full and final payment.

7. If the actual amounts generated and required for the supplementary expenses are greater than the approved annual supplementary operating budget, a revised budget shall be prepared and submitted in accordance with university budgetary procedures, before the established budgetary authority is reached.

8. In preparation of the supplementary operating budget, the dean of the college shall allocate the Fiscal Agent grant for supplemental compensation based

on generation of income from professional fees and other sources and based on performance.

9. Departmental or Divisional Practice Plans ("Departmental Plans") are allowed if authorized by the College Addendum. If so authorized, the Departmental Plans shall be approved by the Dean, Provost, and EVPHA, and shall comply with the terms of this regulation.

X. The Practice Plan Committee

A. The Practice Plan Committee of each Plan shall be elected by the members of the Plan and will consist of a minimum of five (5) members of the Plan. In addition, the dean of the college shall serve as an ex-officio member ~~ex officio as Chair~~ of the Committee.

B. The Committee shall meet periodically and shall review the operation of the Plan and the College Addendum, including matters relating to the applicability of the Plan to sources of income, standard schedules of charges for services, and any other aspects of the operation of the Plan. The Committee shall make such recommendations as it may deem appropriate to the dean of the college, with respect to the modification of the policies and procedures provided by this Plan or utilized in its operation. In the event that changes are deemed necessary by the dean, they shall be brought before the college Plan members by the Chair of the Committee.

XI. Limitations on Practice by Faculty Members

A. As a condition of employment, Plan members shall not maintain offices or engage in the practice of their profession outside of the approved programs of the University, except in infrequent and special circumstances as in emergencies and in other situations where provision of service is required by professional ethics. The Plan Member Documents shall reflect the limitations set forth in this regulation.

B. Plan members shall avoid all actual or potential conflicts of interest in their professional activities. Accordingly, during any period of assignment, non-assignment, sabbatical or other leave, all outside professional activities, whether income-generating or not, and whether exempt from inclusion in the Plan, shall be reported in advance to the ~~D~~dean and again on a annual basis on forms prescribed by the EVPHA and Provost. All outside professional activities are subject to applicable University regulations and policies related to conflicts of interest, including but not limited to: *Governing Regulation, Part I,* Ethical Principles and Code of Conduct and Code of Conduct Addendum-Clinical Enterprise, and *Administrative Regulation II-4.0-4,* Research Conflict of Interest and Financial Disclosure Policy.

C. To assure compliance with Internal Revenue Service (IRS) regulations, an employee who has controlling interests (owns at least 50% or more) of an outside company must report any contributions made to a Qualified Retirement Plan, Simplified

Employee Pension plan- Individual Retirement Account (SEP-IRA) or any other retirement investment vehicle. Contributions made should be reported immediately to the Human Resources Employee Benefits Office to ensure Internal Revenue Service plan limits are not exceeded.

XII. Exceptions and Appeals

A. Plan members requesting exclusion from the Plan of an income generating activity not subject to an exemption enumerated in the each college's plan shall make a request in writing through the respective director or chair to the dean. The dean shall make a decision based upon an interpretation of the definition of income and other facts and circumstances. The decision shall be communicated, in writing, through the division or department, to the Plan member. Plan members wishing to appeal the decision of the dean shall do so in accordance with paragraph B, below.

B. Plan members wishing to appeal a decision of the dean to deny a request for exclusion of income from the Plan, any salary or distribution dispute, or any actions of the Plan, shall advise the dean, in writing, within thirty business days of when the Plan member knew or should have known about the matter so appealed. The dean shall have ten business days to affirm, modify or deny the appeal. If no action is taken, the original action shall be deemed to have been affirmed. The Plan member shall then have thirty business days to appeal the action of the dean to the Provost and EVPHA, each of whom shall receive a written request from the Plan member setting forth the details of the basis for the appeal and the alleged reason(s) the dean is not correct. The Provost and EVPHA shall have thirty business days to issue a joint written decision to affirm, modify or deny the appeal.

XIII. Effective Date

A. This is regulation is effective July 1, 2009

B. Until such time as an individual College Addendum is approved, any other existing Administrative Regulation establishing a practice plan for that college shall remain in effect. Upon the effective date of the initial College Addendum for each college, the prior Administrative Regulation shall be superseded in regard to that college's Plan.

C. College Addenda, and revisions thereof, are effective when executed jointly by the respective college dean, the Provost, and the EVPHA, on such date as specified therein.

COLLEGE (or UNIT) PRACTICE PLAN ADDENDUM
(SAMPLE)

Preamble: This Addendum (the "Addendum") supplements Administrative Regulation (AR) 3:14_____ and provides specific information concerning the practice plan of_____ (the "College" or "Unit"). It may be referred to as the College of _____or _____Unit Practice Plan Addendum.

General: An annual contract (the "Annual Contract") _____is _____is not (check one) authorized with an approved Fiscal Agent (not required if Fund serves as Fiscal Agent). If authorized, the annual contract is part of this Addendum and incorporated by reference, herein. If a conflict in terms arises between the Annual Contract and the College or Unit Addendum, terms of the Annual Contract shall take precedence.

Specific: College or Unit Addendum Modifications, below, are made in reference to the specific paragraphs of *Administrative Regulation (AR) 3:14, Practice Plans for Health Science Colleges and University Health Services*.

I. Introduction.
The terms set forth in AR 3:14, Paragraph I, are not subject to local modification.

II. Scope.

The Plan Members are faculty in the (title series, appointment periods, University Health Services):

_____
_____
_____
_____

Services provided by Plan Members incident to the care of patients and to all other activities which are a part of the health care programs of the University are included in the Plan. This includes compensation, income and payments (direct or in kind, and whether characterized as fees, retainers, or otherwise) for professional services rendered or to be rendered, including, but not limited to, those relating to: (a) the diagnosis, treatment, and evaluation of patients; (b) the provision of therapeutic products for patients or others; and, (c) consultation with patients.

In addition, the following professionally generated income is included in the plan: (check "yes" or "no")

YES_____ NO_____ Direct and in-kind payments (excluding actual out-of pocket costs) for providing (a) advice, (b) professional consulting services, (c) service on boards, committees, commissions, or the like, and (d) oversight, supervision, or other participation with any entity or person involved with health or medical care are included in the Plan.

YES_____ NO_____ Witness fees and payments relating to depositions, testimony, or other evaluations in the capacity of a witness;

YES_____ NO_____ Professional fees and compensation for educational consulting in medical and pharmacy focused programs in conjunction with the pharmaceutical industry and/or other external agencies;

YES_____ NO_____ Honoraria for lectures;

YES_____ NO_____ Unassigned income from publications;

YES_____ NO_____ Prizes for personal past achievements and not for services rendered;

YES_____ NO_____ Special administrative stipends paid by the University for performing administrative assignments beyond those normal to academic appointments;

YES_____ NO_____ Income for a profession or activity unrelated to the professional education, experience, or training that qualifies members of the Plan for a University appointment;

YES_____ NO_____ Payments for service to NIH or other governmental peer review research project site visits or review activities;

YES_____ NO_____ Any reimbursement and fees associated with regular continuing education programs funded by the College;

YES_____ NO_____ Other income which relates to or would not exist but for the professional education, experience, or training that qualifies members of the Plan for a University appointment.

III. Definition Details.

The Fiscal Agent, if other than the Fund, of the Plan is: _____

The Practice Plan Committee consists of:

_____

_____

_____

Department or Division Plans ____ are ____are not authorized. If authorized, the following requirements apply (first five apply, unless an exception is granted by the Provost and EVPHA:

____Written Document
____Approval by Dean
____Approval by Provost

____Approval by EVPHA
____Legal Review
____Annual Audit
Other:_____
_____
_____

The Plan Service Account is maintained by: ____the Fund; ____Other
Specify_____

The Billing Agency is:_____

The Plan Member Documents include:
_____Practice Agreement
_____Assignment for Billing to:_____
_____Non Compete or Restrictive Covenant
_____Other (specify)_____
An example of the form of each is attached hereto, as Collective Attachment III, and incorporated by this reference.

IV. Underlying Principles.
The principles set forth in AR 3:14, Paragraph IV, are not subject to modification.

V. Setting of Charges.
Any special terms concerning the setting of fees are attached hereto as Attachment V, which is attached hereto and incorporated herein by this reference.

VI. Billing and Collection.
The college billing and collection process, if in more detail than AR 3:14, Paragraph VI, is described in Attachment VI, which is attached hereto and incorporated herein by reference.

VII. Use of Funds Deposited in the Plan Services Account.
The terms set forth in AR 3:14, Paragraph VII, are not subject to modification.

VIII. Plan Administrator and Budget.
The Plan Administrator is:_____.

The College budget process, if described in more detail than AR 3:14, Paragraph VIII, is described in Attachment VIII, which is attached hereto and incorporated herein by reference.

IX. Provisions for Faculty Salary Supplemental Compensation.
The percent of net revenue to be allocated for supplemental compensation, as determined by the EVPHA and the Provost is _____.

The College shall retain _____ percent of collected fees for its use in professional development, educational promotion, academic enrichment and related endeavors. Any special retention of funds or fees is described in Attachment VII, which is attached hereto and incorporated herein by reference.

The Frequency of Distributions is: ____monthly; ____quarterly; ____other (Specify)_____.

X. The Practice Plan Committee.
The terms set forth in AR 3:14, Paragraph X, are not subject to modification.

XI. Limitations on Practice by Plan Members.
Any additional modifications or limitation on practice are attached as Attachment XI, which is attached hereto and incorporated by this reference.

XII. Exceptions and Appeals.
Any modifications to the grievance procedure are described in Attachment XII, which is attached hereto and incorporated by this reference.

Any Special Provisions are attached hereto, as the Special Provisions Attachment, and incorporated by this reference. If any Attachment referenced herein is not included, the Attachment is conclusively presumed to be omitted intentionally.

XIII. Effective Date.
This Addendum shall be in force for a term beginning July 1, 2009 and ending June 30, 2010. It shall automatically renew for any number of successive one year terms unless terminated or modified by a writing signed by the approving parties, below.

APPROVING PARTIES:

DEAN, College of _____

_____
(Signature)

PROVOST:

_____
(Signature)

EVPHA:

_____
(Signature)