

# Graduate Certificates

A Graduate Certificate is an integrated group of courses that is designed to have a very clear and focused academic topic or competency as its subject area. Often, a Graduate Certificate may meet a clearly defined educational need of a constituency group, such as continuing education or accreditation for a particular profession; respond to a specific state mandate; or provide a basic competency in an emerging, usually interdisciplinary, area. A Certificate is not a graduate degree program (it is typically between 9 and 15 credits), but it does provide the student formal recognition of the mastery of a clearly defined academic topic.

Graduate Certificates are becoming an increasingly important component of the total range of graduate educational opportunities offered by a modern, comprehensive research university. Often, Certificates are pursued by students who are also pursuing a graduate degree in a traditional discipline, or who may already have earned one or more graduate degrees. Programs or groups of faculty who wish to establish a new Graduate Certificate at the University of Kentucky should consult the [Guidelines for Graduate Certificates](#).

Although formal admission to a specific Graduate Certificate is handled by the Director of the Certificate, a student seeking to pursue a Graduate Certificate must also apply to and be enrolled as a graduate student at the University of Kentucky. Some Certificates may require concurrent enrollment in a degree-seeking program of study, however, many students will be enrolled only in the Graduate Certificate program of study. More information on admission requirements and specific plans of study for a particular Graduate Certificate can be obtained via the contacts below. Note that admission to or completion of a Graduate Certificate does not guarantee subsequent admission to a graduate degree program; that is a separate process, and different criteria prevail.

## **Anatomical Sciences Instruction**

The graduate certificate in Anatomical Sciences Instruction will provide a coherent integrated approach to helping graduate students, postdoctoral scholars, residents and others develop and document the skills needed in order to effectively teach the anatomical sciences. This 12 credit-hour certificate, including a required 3 credit-hour supervised practicum experience, provides basic competency in graduate-level anatomical sciences instruction and provides participants with documentation of their abilities. The certificate is accessible to participants from a wide range of disciplines and backgrounds and will provide practical, hands-on anatomy course work and instructional mentoring. The certificate will produce graduates who are highly competitive in the job market, as the numbers of individuals able to provide graduate-level instruction in the anatomical sciences is well above crisis level.

## **Applied Statistics**

Statistical data analysis is ubiquitous in all areas of science, engineering, medicine, agriculture and education. Research and professional success in these disciplines often depends on using the latest advances in applied statistics. Multidisciplinary research projects involving a substantial component of applied statistics are becoming a frequent venue of expanding the borders of knowledge. This certificate will train graduate and professional degree students in the use of applied statistics in their own field. The students will be able to use this enrichment to become more productive professionals, to further research in their own areas and to engage in multidisciplinary research relying on applied statistical techniques.

## **Assistive and Rehabilitation Technology**

The graduate certificate in assistive and rehabilitation technology is a collaborative effort between the Department of Early Childhood, Special Education, and Rehabilitation Counseling and the Department of

Rehabilitation Sciences in the College of Allied Health and the Human Development Institute. Students may choose an emphasis from either special education or rehabilitation counseling. Both emphases will require three foundation courses, one related elective and one practicum course for a total of 15 graduate hours. The content of the certificate is broad. Major areas include Assistive Technology Devices, Assistive Technology Assessment and Coordination of Assistive Technology Services.

### **Autism Spectrum Disorders**

The College of Education offers a graduate certificate in Autism Spectrum Disorders (ASD). The certificate is a collaborative effort between the department of special education and rehabilitation counseling, and the department of educational, school, and counseling psychology in the College of Education and the Department of Communication Sciences and Disorders in the College of Health Sciences. The primary purpose of this 15 credit hour certificate is to provide special education teachers and related personnel from across the state with advanced credentials that will allow them to implement evidence-based and research-based strategies. The certificate will accomplish the following: (a) efficiently and effectively equip professionals to meet federal and state demands for quality; (b) provide professionals with the knowledge and skills to identify, use, and recommend research-based practices for students who have asd, including students from culturally and linguistically diverse backgrounds; and (c) provide personnel with knowledge and skills to work collaboratively with district and school-level teams. The specialized five course asd graduate certificate program will include competencies in the following areas: (a) implementing evidence-based and research-based instruction, (b) using data from formal and informal assessments to guide instruction, and (c) serving as specialists in district and school-wide programs to support students with autism in improving areas of communication, socialization, behavior, and access to the general education curriculum.

### **Baroque Trumpet**

The certificate in Baroque Trumpet will complement existing programs in music education, music performance, and musicology. This new certificate program is needed because, currently, there is no Baroque trumpet component of any of these programs. Students in these programs study modern instruments. Their applied study (MUP 512, 612, 712, etc.) is on modern instruments, they are assessed (in the form of a jury) on their modern instruments, and all instruction is on modern instruments. The Baroque trumpet is an entirely different (and arguably much more difficult) instrument. The Baroque trumpet is an 8-foot long instrument with no valves.

### **Biostatistics**

The graduate certificate in Biostatistics (gcb) is a 15-credit hour graduate certificate that allows students studying in programs outside the department of biostatistics to learn a basic background in the design and analysis of biomedical studies. The courses included in this certificate will provide students with an introduction to methodological applications in public health and medical research; skills that will be necessary for completing quantitative components of research projects and attractive to future employers.

### **Clinical and Translational Science**

The graduate certificate in Clinical and Translation Science will serve as the entry point for graduate-level training in clinical and translation science. The curriculum is designed to establish knowledge-based and skill-based competencies in communication, professionalism, critical thinking and synthesis of knowledge, planning, management and assessment and leadership in five areas; CTS methods and technologies, scientific knowledge, measurement and statistics, research integrity and collaboration and team building. The certificate will be available to a) faculty members at the University of Kentucky who are planning to participate in clinical and translational research but lack previous training and the skills necessary for clinical and translational research, b) professionals in postgraduate training at uk, including residents and fellows in the college of medicine, college of pharmacy and college of dentistry and c) graduate students

in health-related ph.d. And MS programs, d) project managers and other staff members interested in contributing to clinical and translation science and e) professionals practicing in the community.

## **Cognitive Science**

The cognitive science certificate provides students with the opportunity to study the information-processing aspects of the mind. Participating faculty come from various departments in the College of Arts and Sciences (Anthropology, Biology, Linguistics, Philosophy, Psychology, and Statistics), as well as from the College of Engineering (Computer Science) and the College of Medicine (Anatomy, Behavioral Science, and Neurology). The graduate certificate is open to all graduate students at the University of Kentucky.

## **College Teaching and Learning**

The graduate certificate in College Teaching and Learning provides a coherent, integrated approach to helping graduate students, postdoctoral scholars, current faculty, and others develop and document the skills needed as part of conscientious preparation for the full range of faculty responsibilities at a range of institutions of higher education.

## **Computational Fluid Dynamics**

The graduate certificate in Computational Fluid Dynamics (CFD) is available, in principle, to all graduate students in engineering and the mathematical, physical and biological sciences. CFD is a generally recognized sub-discipline of fluid dynamics, complementing use of theory and experimentation in the analysis of fluid behavior from sub-micro scales to intergalactic cosmological distances. CFD is highly interdisciplinary and areas of current interest include biological flows (e.g. Air in respiratory systems and blood in circulatory systems of animals), flows in porous materials (e.g. Remediation of contaminated ground water, extraction of oil from marginal deposits) and combusting flows (e.g. For higher energy conversion efficiencies and less pollutant production). Thus, competency in the use of cfd is becoming critical to the advance of science and technology in the 21st century and it has become an essential engineering tool in industrial environments ranging from aerospace to food preparation and pharmaceuticals.

## **Developmental Disabilities**

The graduate certificate in Developmental Disabilities prepares professionals from a broad range of disciplines to play a leadership role in providing services and supports for people with developmental disabilities and their families. An emphasis is placed on developing skills in the field of disability research. The course work emphasizes a life span and interdisciplinary perspective with an emphasis on promoting self-determination, community integration and inclusion. In addition to a broad, interdisciplinary perspective, students acquire a basic foundation in a number of specific, topical areas such as specialized health care services and financing, inclusive education, behavioral supports, employment and community living options, advocacy, legislation, assistive technology, organizational development and theory, group facilitation, and research proposal development. All courses are taught by an interdisciplinary faculty. Students have the opportunity to participate in a practicum and work directly with individuals with developmental disabilities and their families. Students also complete a research project under faculty supervision. Three didactic courses (HID 600, 602 and 604) and one practicum course (HID 603) are required for the certificate. In addition to the required courses, two or three hours of elective course work is also required; either HID 601, HID 605 or one elective from outside hdi courses and those courses required in the student's degree program.

## **Digital Mapping**

The New Maps Plus graduate certificate in digital mapping is designed to serve the expanding landscape of mapping. This includes new professional sites and applications where maps are made by various people (from small business owners to non-profit managers to marketers) using all kinds of (often freely available)

software and websites. Admissions requires a bachelor's degree but no prior GIS or mapping experience is necessary. Holders of the graduate certificate will be able to:

- Identify the appropriate applications of different forms of geospatial data, analytical techniques and mapping software platforms.
- Gather, integrate, transform and analyze geospatial data from multiple sources.
- Create static and interactive maps and visualizations in accordance with prevailing and rigorous cartographic standards.
- Develop basic web-based programs and scripts utilizing web standards to enhance user interaction with maps.
- Identify and implement appropriate applications of design components to maximize the usability of maps.
- Construct a publicly-available online portfolio of data, code, maps and accompanying explanations on an online sharing platform such as Github.

### **Distance Education**

In response to increasing student demand, a large number of postsecondary institutions and agencies in public health, government and private business are developing distance learning programs. However, distance education requires a unique set of skills for course program development, management, support, and delivery. To prepare current and future faculty and administrators, the University of Kentucky offers a graduate certificate in distance education through the collaborative efforts of the Department of Early Childhood, Special Education and Rehabilitation Counseling and the Department of Curriculum and Instruction within the Instructional Systems Design (EISD) program and Distance Learning Programs.

### **Engineering in Healthcare**

The Engineering in Healthcare graduate certificate offers didactic education and optional hands-on research experience in the application of engineering principles to healthcare problems. This 5 course/15 credit-hour (minimum) certificate is designed for students with a Bachelor's degree in engineering, chemistry, math or physics. Completion of the program will help students to: 1) distinguish themselves academically from their competition to professional school programs, 2) engage in relevant educational experiences (including research) in the "gap year" between undergraduate studies and professional school, 3) provide the foundation for enduring academic success by helping improve academic preparedness for professional school curricula, and 4) explore Biomedical Engineering as an adjunct (or primary) healthcare career option without formally committing to the master's degree program. Students who complete this certificate have the option to apply most of the credits earned towards the Master's degree in Biomedical Engineering.

### **Eurhythmics**

The University of Kentucky Eurhythmics certificate, typically earned with three years of satisfactory engagement in the summer institute workshops, features courses that apply to the music teacher's work with students of all ages using an approach to music education created by emile jaques-dalcroze. Additionally, successful completion of the University of Kentucky eurhythmics certificate can serve as an entry into study for the internationally-recognized dalcroze certificate. The dalcroze approach has three branches: eurhythmics trains the body to respond kinesthetically to rhythmic and dynamic concepts. Solfège trains the ear, eye, and voice in pitch, melody, and harmony. Improvisation enables students to respond to concepts according to their own invention, through movement, voice, and at an instrument.

### **General Radiological Medical Physics**

The field of Radiological Medical Physics is the study of the use of radiation to diagnose and treat human diseases and is a relative newcomer in medically-related scientific disciplines. The first "radiological

physics” practitioners were trained in the basic sciences, typically physics. Dedicated radiological medical physics education programs are a recent phenomenon. These programs strive to combine the scientific and medical aspects of the field but they remain small and few in number. To help meet the demand for workers in radiological medical physics, it has been common over the past 40 years to accept persons with closely related scientific backgrounds into the field and provide them with on-the-job training. Even today, a large fraction of practicing radiological medical physics have degrees in fields other than radiological medical physics. Many of these are leaders in the field and their contributions have been and will remain very important. Their work experience has traditionally provided the pathway into certification for these radiological medical physicists. However, given the recent changes adopted by the medical physics education community, these potential outside candidates must document completion of a basic core curriculum in radiological medical physics in addition to a Ph.D. Degree received in a closely related discipline in order to qualify for certification by the American Board of Radiology (ABR) in radiological physics. The curriculum credit hours required for the graduate certificate in radiological medical physics totals 16.

### **Gender and Womens Studies**

The graduate certificate in Women’s Studies is intended to provide students with a coherent, interdisciplinary grounding in current gender and women’s studies scholarship and to create an intellectual community among faculty and graduate students who share scholarly interests in gender and women’s studies. The graduate certificate in women’s studies may be taken to complement a student’s disciplinary program, or it may be taken independent of the pursuit of any disciplinary graduate degree. For full information on this curriculum, please see our web page: [www.uky.edu/artssciences/womenstudies/certificate.html](http://www.uky.edu/artssciences/womenstudies/certificate.html).

### **Gerontology**

The graduate certificate in Gerontology is an interdisciplinary curriculum offered by the Sanders-Brown Center on Aging. The certificate is a part of Sanders-Brown’s complete range of research and educational activities that prepare both graduate students and practicing professionals from many disciplines to assume key roles in improving the quality of life for older adults and furthering our understanding of the aging process. Its interdisciplinary focus makes it possible for students to tailor their course work to support their own fields of interest.

### **Global Health**

The goal of the graduate certificate program in Global Health is to provide a general foundation in the understanding of global health issues and the complex multiplicity of factors that affect them, and to provide some basic tools in health assessment methods to measure their impact. Given the widespread globalized nature of our world today, there is an increasing need for understanding the impact of globalization on health, both in terms of health patterns common across regions, and in terms of how what were once considered focal, limited local issues can transcend national and continental borders. The program is designed to prepare students for the increasing demand for international, interdisciplinary skills in the areas of public health prevention, health care and other health-related disciplines. The global health certificate will include a minimum of 15 credit hours - 12 of classroom coursework and 3 based on a required international internship course. The program is housed in the college of public health, but it is intended to be multidisciplinary and open to a variety of graduate students in any of the health sciences or other disciplines across campus. It is also available to professionals or other college graduates interested in obtaining this additional training.

### **Health Coaching**

Health Coaching has been defined as, “...the practice of health education and health promotion within a coaching context, to enhance the wellbeing of individuals and to facilitate the achievement of their health-

related goals” (Palmer et al., 2003). Health coaches help clients identify their goals, develop an action plan, and help put the plan into action while giving support and helping to motivate clients toward success.

The Department of Kinesiology & Health Promotion at the University of Kentucky proposes a new 15-credit graduate certificate in health coaching designed to meet the supplemental education needs of current health promotion professionals and those training to become health promotion professionals. The graduate certificate would be open to any students who are already are or will be enrolled in a degree program, or those who simply apply for postbaccalaureate (non-degree) status in order to complete the certificate, are eligible to apply for admission.

### **Health Communication**

The graduate program in Communication offers a certificate in Health Communication that is available to (a) students in the Ph.D. And M.A. programs in communication, (b) students in other doctoral programs at the university and (c) post baccalaureate students. The certificate program is aimed primarily at individuals interested in developing specialized knowledge and research expertise in health communication that could be applied within both academic and nonacademic settings. Students are expected to have a background in social or behavioral science prior to entering the program. To earn the certificate, students must complete CJT 671 and 771 and either CJT 780 (section focusing on a health communication topic) or a graduate course in medical informatics, for a total of 12 credit hours.

### **High Performance Coaching**

The University of Kentucky Department of Kinesiology and Health Promotion offers a Graduate Certificate in Health Coaching. Health Coaching has been defined as, “...the practice of health education and health promotion within a coaching context, to enhance the wellbeing of individuals and to facilitate the achievement of their health-related goals.” The aim of the Graduate Certificate curriculum is to provide a foundation in current behavior change theories/models, motivational interviewing, as well as understanding of current health issues. Students may complete the certificate as a complement to a graduate disciplinary degree program or as a stand-alone curriculum. Students who are currently enrolled as a graduate student in a department at the University of Kentucky are encouraged to apply for the Health Coaching Graduate Certificate program early in their graduate studies. Students who are enrolled in the M.S. in Health Promotion program are eligible to count up to 9 credit hours from their program, requiring them to take six additional credit hours (on top of their M.S. curriculum) to complete the graduate certificate.

### **Historic Preservation**

The graduate certificate in Historic Preservation is now available to both graduate students and practicing professionals. Certificate students have a choice of three areas of concentration: preservation and design; preservation and economic development; and preservation and planning. The certificate requires 12 credit hours, and is a great way to gain an advantage in an increasingly competitive job market. The certificate consists of two core courses, and two courses from the area of concentration.

The graduate certificate may be earned concurrently with a master’s degree in any other field, such as architecture, interiors, history, anthropology, engineering, or business. It may also be earned by professionals who already possess a bachelor’s degree in another field. Previous design experience or education is not a requirement for acceptance into the certificate program. Knowledge of the values and legal framework that drives preservation decisions is useful to numerous professions in today’s world. Certificate students will learn preservation principles, tools, and techniques that will allow them to apply their base knowledge within a historic context.

### **Human Technology Interaction**

The certificate in Human-Technology Interaction brings together students in the social, behavioral, and

health sciences with students in the design professions. It is intended specifically for: 1) those in the social, behavioral, and health sciences who would like to learn how their disciplinary knowledge can be used to enhance the safety, productivity, and satisfaction of people interacting with both “high-tech” and “low-tech” systems, 2) those in the design professions who would like to apply principles derived from the study of human abilities, limitations, and preferences to the design of new or modified technology. Students from engineering, instructional systems design, architecture, graphic design, computer science, and other design fields are welcome to apply and, 3) those interested in exploring career options in ergonomics, human factors psychology, or usability engineering. The certificate requires 15 hours of graduate work, including two foundation courses, two elective courses, and one practicum or research experience.

### **Improving Healthcare Value**

The Graduate Certificate in Improving Healthcare Value is an inter-disciplinary program and will be led by a small team composed of senior faculty members from the College of Public Health, the College of Business and Economics, and the College of Engineering. This certificate is intended to create educational opportunities for UK graduate students in a range of disciplines, for UK HealthCare staff, and for other healthcare workers to enhance their knowledge and skills related to improving the value (quality and cost) of health care services provided by hospitals, health systems, and academic medical centers.

### **Inclusive Education**

The Inclusive Education Graduate Certificate responds to the critical and growing need for general education teachers to have adequate support in serving the students with disabilities in their classrooms. This 5-course program prepares general educators, educational leaders, and other school personnel to team with specialists to design and deliver effective accommodations, modifications, and interventions within general education settings.

### **Instructional Communication**

The 12 credit hour graduate certificate in Instructional Communication is designed to help students achieve instructional communication competency that can be applied in a wide range of contexts. Specifically this program will 1) provide students with a multi-faceted view of instructional communication theory and research methods 2) prepare to students to effectively plan, lead and assess communication effectiveness in diverse instructional contexts and 3) provide students with the knowledge and skills to be competitive in a knowledge and technology-driven society.

### **International Education**

The graduate certificate in International Education will prepare graduate students for careers in international education, including but not limited to education abroad, international student services, and placement in other international organizations which support the exchange of students. The field of international education is a critical component of the internationalization of higher education in the united states and abroad. This certificate is designed for any graduate student (or admitted post-baccalaureate student) wishing to enhance their graduate degree. The proposed curriculum includes a combination of nine hours of core courses and six hours of elective coursework. In preparing to complete their certificate, students must identify a regional concentration, and are encouraged to participate in some form of professional or experiential learning opportunity to acquire skills in management, program development, and/or assessment. Although the certificate does not require language coursework as part of the curriculum, participants are also required to describe their language proficiency relative to their professional and regional concentration so that they are aware of and prepared to be competitive in the field.

### **Latin Studies**

The Latin Studies certificate curriculum, consisting of a sequence of four courses in latin language and

literature, aims at two groups of students in particular. First, it is aimed at graduate students who need strong latin skills for any academic discipline in which latin is important, including not only classics, but also history, philosophy, theology, etc., and who are already engaged in, or hope to undertake advanced study in one or more of these fields. The certificate curriculum will offer to such students an interdisciplinary opportunity to gain a superior command of latin in a highly concentrated format, but in a relatively brief period of time. Second, it is aimed at the training of new latin teachers for the high school level and even pre-high school instruction. The latin studies certificate curriculum will be highly useful for those interested in teaching latin, because it will provide a much deeper immersion in latin language and literature than what has so far been usual for students seeking careers as latin teachers, and will ensure that all who complete it acquire not merely reading skills, but also considerable active command of the language.

### **Latin American, Carribean, and Latino Studies**

This certificate is directed primarily at graduate students whose intended academic and/or professional careers in research, teaching, and public or private sectors incorporate a focus on the geographical and cultural region of latin america, the caribbean, and the populations of latin american and caribbean descent living in the united states, europe, and other parts of the world. It provides graduate students with the skills and knowledge to connect latin american, caribbean, and latino topics to their research agendas. It is pursued concurrently with, the regular m.a and ph.d. Degree programs of participating departments. To be awarded the graduate certificate in latin american, caribbean, and latino/a studies, the student must successfully complete four courses amounting to 12 graduate credit hours with an overall GPA of 3.0 or higher.

### **Lean Systems**

Lean Systems is a proven technique for reducing waste, improving productivity, and increasing the bottom line found to be effective across many industries, businesses, and organizations. Companies spend a lot of money educating their current employees and place a high premium on new graduates who have already acquired knowledge in the field. The graduate certificate in lean systems is based on the toyota production system (tps) and requires 12 credit hours of coursework.

### **Manufacturing Systems**

Competitive markets require manufacturing organizations to be increasingly efficient, innovative and sustainable. Highly skilled manufacturing engineers with advanced technical knowledge and capabilities are essential to the success of these organizations. The Manufacturing Systems certificate program is designed to develop manufacturing engineers with the knowledge, skills and attitude required for value creation by designing, manufacturing and managing more sustainable products, processes and systems. The certificate is structured as a four course program with all courses available entirely online. It provides graduate level qualifications for engineers and manufacturing professionals in industry who are interested in expanding their qualifications with less of a time investment than is required for a full master's degree.

### **Military Behavioral Health**

The graduate certificate in Military Behavioral Health curriculum will benefit students by enhancing their understanding and appreciation of cultural and environmental factors that affect individual and family functioning for military and veteran populations. They will gain skills in assessment, intervention, and prevention of psychosocial problems typically encountered by this population. In order to earn the graduate certificate students must complete a total of 12 credit hours. Students will complete three designated 3 credit hour courses, sw 530 responding to military and veteran populations {appendix I}, and SW 738 independent work with military populations (appendix II),FAM 759 special topics: working with military families. Eligibility is limited to students who hold, or are pursuing, a graduate degree in the counseling professions. These include social work, family sciences, clinical psychology, and educational,



school and counseling psychology. Graduate and post-graduates from other human services disciplines may petition the advisory board for acceptance to the certificate. Exceptions will be evaluated by the advisory board on a case-by-case basis. The board will consider exceptions based on assessment of the applicant's academic and vocational history. All applicants must apply to the certificate director for admission.

### **Music Theory Pedagogy**

The graduate certificate in Music Theory pedagogy is intended primarily for DMA. (Doctor of Musical Arts students who wish to gain experience and expertise in theory pedagogy in order to strengthen their background for increased marketability in higher education. Students desiring admission into this certificate curriculum will be interviewed by a committee consisting of members of the theory faculty and a music faculty member outside of theory. The interview will include an appraisal of the student's keyboard proficiency, sight-singing and aural skills, and understanding of theoretical concepts. The student's scores on graduate entrance exams in music theory will also be assessed. It is assumed that any student granted admission into the certificate curriculum would have been accepted as a student in the graduate school.

### **Next Generation Teaching and Learning**

Next Generation Teaching and Learning incorporates 21st century skills (collaboration, communication, technology, critical thinking, problem solving and performances of learning), is a current direction in educational endeavors in a variety of learning environments from k-12 classrooms and teacher professional development to museums and after-school programs. This certificate combines required next generation foundations and assessment components with specialty electives, representative of cutting edge innovative pedagogy. The certificate comprises 12 hours of graduate coursework as follows: nine (9) credit hours of required course work comprised of three (3) hours of the next generation learning foundations course, three (3) hours of an internship choice, three (3) hours of a course on data-driven decision making and a final three (3) chosen from specialty course options. A key purpose of the certificate work is a demonstration of research to practice knowledge and skills, through implementation and assessment of next generation pedagogy in a field setting.

### **Orff Schulwerk**

Orff Schulwerk is the music approach created by composers Carl Orff and Gunild Keetman. The schulwerk is a way to teach and learn music using poems, rhymes, games, songs, and dances as basic materials. The University of Kentucky offers schulwerk teacher training courses, mostly in the summers, taught by orff experts. Training is given at levels 1, 2, 3 and advanced master's courses in different topics such as curriculum design, and composition. The graduate certificate in Orff Schulwerk is a twelve-hour curriculum in four components:

1. Orff teacher training level one (mus 560/561, 2-4 credits).
2. Orff teacher training level two (mus 560/561, 2-4 credits).
3. Orff teacher training level three (mus 560/561 2-4 credits).  
Or orff master courses (prerequisite: orff teacher training level 2)
4. Certificate project (mus 767 1-3 credits) (prerequisite: orff teacher training level 2)

Each student must take all four of the components, each at two credits minimum, for a total of 12 credit hours. Each component is offered at variable credits. All credits earned in this certificate may be applicable towards the Master of Music in Music Education degree (M.M.M.E.) or the rank i in music education program. Admission requirements are the same as those in effect for post-baccalaureate status, and approval of the certificate director. The certificate is awarded upon completion of the certificate curriculum within five years, and with a minimum of 3.0 GPA.

### **Pharmaceutical Science**

The certificate program offers College of Pharmacy students a pathway to study basic pharmaceutical

sciences in the professional program. The goal is to encourage pharmacy students to consider a ph.d. In pharmaceutical sciences upon graduation of the pharmacy school. The gateway complements 2 other gateway certificate programs offered by the College of Pharmacy. The educational requirements were not initially clear to the committee. A request was made for clarification on credits - the sponsors made a satisfactory response. The program was considered highly desirable by the committee members and well aligned with student and faculty initiatives.

#### Part II. Certificate specific requirements

- A minimum of 9 hours of graduate coursework
- Three hours of independent study in pharmaceutical research
- Participation in the pharmaceutical sciences (PS) summer research program in the professional year (PY) 1-PY2 and/or PY2-PY3 year
- Two 6 week research-based rotations in PY4
- Presentation at local or national meeting

### **Physiology Teaching**

The graduate certificate in Physiology Teaching provides a mechanism for students to document their competency in the basic skills necessary to teach a comprehensive physiology course. The certificate will be accessible to participants enrolled in a wide range of biomedical disciplines, but it will be especially valuable to medical science graduate students that anticipate a career in academic physiology. This 15-hour certificate is significant in that many doctoral programs in the medical sciences emphasize preparation for a research-oriented career but do very little formal instruction related to education and teaching. Our department has historically placed a high emphasis on the training of graduate students for both research and teaching careers. This certificate will recognize and document that emphasis for the students that choose to complete the certificate requirements. As research in physiology becomes more specialized, utilizing molecular and cellular approaches, there is a very real and distinct demand for physiology instructors that have experience in all levels of physiology teaching, especially systems physiology.

### **Power and Energy**

The purpose of the proposed graduate certificate in Power and Energy is to provide students With state of the art knowledge in power and energy areas and produce well trained graduates in Power and energy areas. It is anticipated that there will be a substantial shortage of power and energy Professionals in the national labor force in the near future. To help train more power and energy Engineers, the department of energy (doe) issued a call for proposals on power and energy workforce Training in december 2009. The college of engineering submitted a proposal and was awarded a grant To create a Power and Energy Institute of Kentucky (PEIK)to train the next generation of power and energy professionals. As part of the proposal, we have proposed to offer a graduate certificate in power And energy. In close collaboration with industry, the institute will combine existing UK College of Engineering power engineering courses with newly created courses to provide students with an Attractive, clearly-marked pathway into the power engineering workforce.

### **Public Finance Management**

The Martin School is offering an online Graduate Certificate Program in Public Financial Management. This program, a first for the Martin School, will be attractive to students desiring only an introduction of class offerings in public financial management. The proposed online 12 credit hour Graduate Certificate Program in Public Financial Management fills an additional niche as an alternative for those who are not interested in seeking a full masters program in that area. Persons interested in an introduction or review of coursework in Public Financial Management can opt to apply for the online graduate certificate program which includes 4 mandatory courses (PA 631, PA 632, PA 625, PA 626). The length of the Graduate Certificate Program curriculum provides minimum core content, yet it is clearly distinguishable from the

degree program. The courses are offered annually allowing students to complete the certificate in two semesters. The Graduate Certificate in Public Financial Management is designed to provide those with an interest in improving their work performance and those needing a familiarization with the aspects of public financial management. The certificate is also a way for employers in the public sector to add value and professional development training for their employees.

### **Public Health Management**

The graduate certificate in Public Health Management provides a mechanism for public health workers and students admitted to the graduate school to enhance their competencies and skills in management without undertaking a graduate degree in management or public health. The certificate is accessible to students enrolled in the graduate school and the College of Public Health and will be valuable to the public health practitioners throughout the Commonwealth of Kentucky and beyond including locations around the globe. This 15-credit hour graduate certificate is intended to enhance training opportunities for students and public health workers with an interest in management in public health.

### **Rehabilitation Counseling**

The graduate certificate in Rehabilitation Counseling will be housed in the Department of Special Education and Rehabilitation Counseling but it is intended to be multidisciplinary and open to students with a graduate degree in any of the following majors: behavioral health, behavioral science, disability studies, human relations, human services, marriage and family therapy, occupational therapy, psychology, psychometrics, rehabilitation, social work, special education, or vocational assessment/evaluation. It will be open to post-graduate students who are interested in obtaining this additional training. The certificate will include an integrated program of study which includes six required core courses (18 semester hours). All courses have currently been developed and are being offered through the rehabilitation counseling distance learning masters program.

### **Research Methods in Education**

The RMinE Graduate Certificate provides students with the ability to specialize in education research methods that can be applied to a host of disciplines, e.g., social sciences, physical sciences, K-12 instruction/administration, and business. The certificate combines 12 hours of core courses and 3 hours of elective coursework for a total of 15 hours. Students will receive a foundation in a range of approaches to research, including quantitative methods, assessment, evaluation, and measurement, which can be applied at the introductory level to their specific fields. The program is open to all University of Kentucky students admitted to the Graduate School who want to demonstrate they have completed rigorous coursework in research methods.

### **Risk Sciences**

The graduate certificate in Risk Sciences provides the foundational understanding of risk and crisis communication and the opportunity to develop practical application of this knowledge. Organizations and entities of various sizes are becoming keenly aware of the need for effective communication in risk and crisis contexts. This certificate will prepare students to meet this need. The certificate will require twelve credit hours, including risk communication, crisis communication, training and consulting, and knowledge management. Research implications (both theoretical and practical), lessons learned, and new theories of community risk communication will be included in the curriculum.

### **School Social Work**

The graduate School Social Work certificate is designed to prepare social workers to practice school social work, a specialized field of practice. The program also meets the Kentucky education professional standards board mandated requirements for school social work certification. The certificate program is available to: (1) UK degree seeking graduate students in the master of social work program, and (2) post-

baccalaureate (non-degree) students who already hold the msw degree from a cwse accredited social work program. The minimum credits required are 17 for the msw program students and 9 for post-baccalaureate students who hold the msw. Applications for admission are evaluated, and students' progress is monitored and approved by a committee made up professors from the Colleges of Social Work and Education.

### **School Technology Leadership**

The graduate certificate in School Technology Leadership is conceptually framed around the international society for technology in Education's National Educational Technology Standards for Administrators (NETS-A). Students who engage in this graduate certificate will typically be educational administrators at all levels who want to learn how to support technology-suffused education and lead digital-age schools. This certification is focused on creating skills and dispositions for individuals committed to making systemic and lasting changes in schools, districts, states, and nations.

### **Social Theory**

This certificate offers students systematic multidisciplinary training in social theory. It augments, and is pursued concurrently with, the regular m.a and ph.d. Degree programs of participating departments. In total, the certificate requires ten hours of course work, can be pursued in tandem with regular degree programs, and is open to all graduate students at the University of Kentucky.

### **Stream and Watershed Science**

The Stream and Watershed Science graduate certificate provides students with an understanding of the complex physical, biological and social systems involved in stream and watershed related issues. The certificate has an interdisciplinary focus and is administered by faculty in Biosystems and Agricultural Engineering with an advisory committee consisting of faculty representatives from the College of Agriculture, Food and Environment, College of Arts and Sciences, and College of Engineering; the Center for Applied Energy Research; the Gatton College of Business and Economics; and the Graduate School. Students may earn the certificate while making normal progress towards attainment of an MS., MA. or Ph.D. degree or while enrolled in post-baccalaureate status.

### **Teaching English as a Second Language**

The objectives of the 12 credit hour graduate certificate are three-fold: 1. Prepare teachers skilled in supporting the development of english language learners; 2. Provide candidates with a rigorous introduction to the core disciplines in english language teaching: linguistics, language acquisition and pedagogy; 3. Provide candidates with field-based experiences and in-class teaching opportunities in order to develop practical knowledge and skills of second language classroom teaching practices.

### **Vocal Pedagogy**

In order to increase marketability in higher education and be prepared to meet the challenges of teaching voice in the 21st century, the graduate certificate in Vocal Pedagogy is intended primarily for students pursuing a Master of Music (MM) and Doctor of Musical Arts (DMA) degrees in voice and choral conducting who wish to gain more experience and expertise in the science and art of teaching. The proposed certificate could also be pursued by: 1) college and high school choral conductors interested in vocal health and production; and 2) graduate students in communication disorders in the College of Health Science looking to increase their knowledge and understanding of the singing voice. Many new openings in higher education look favorably toward those candidates with secondary areas of expertise and especially pedagogical training. This certificate could be pursued concurrently with the regular MM and DMA degree program of the school of music. The certificate requires the completion of 15 credit hours.