

## 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.

### Advanced Materials Characterization

In the four course Advanced Materials Characterization Certificate (AMCC) students will explore techniques for characterizing and analyzing the atomic-through-mesoscale structure of materials and their surfaces. Students will learn the fundamental principles and limitations of a range of techniques, to prepare samples, and to operate state-of-the-art equipment. The program provides direct, hands-on experiences to both on-campus and distance learning participants by leveraging internet-based remote operation of characterization equipment in the UK Electron Microscopy Center.

### Anatomical Sciences

The graduate certificate in Anatomical Sciences 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 Environmental and Sustainability Studies

The online Graduate Certificate in Applied Environmental and Sustainability Studies prepares graduates for positions in the corporate, government, and non-governmental worlds as a sustainability manager, corporate sustainability specialist, or one of many other fast growing environmental and sustainability professions.

Students take a total of 12 credit-hours of graduate coursework. This consists of 9 credit-hours in Environmental and Sustainability Studies and a methods/skills elective. The curriculum is available [here](#).

## Applied Nutrition and Culinary Medicine

The Graduate Certificate in Applied Nutrition and Culinary Medicine is an online, 12-credit program. This unique graduate certificate is a collaborative effort across the Colleges of Medicine, Health Sciences, and Agriculture, Food and Environment, leveraging faculty expertise from biomedical, clinical and applied sciences. Core coursework explores nutritional approaches to various disease states and practical culinary strategies to bridge dietary recommendations with application. Elective courses allow students to tailor their graduate certificate to the needs of their practice or discipline, while also presenting the latest research concerning drug and nutrient interactions, approaches to community program development, and the physiologic basis for (or against) various dietary supplements. This graduate certificate aims to provide a better understanding and appreciation for the importance of nutrition education for health professionals (physicians, nurses, physician assistants, physical therapists and medical professionals in postgraduate training, etc.) in multiple disciplines, and to recognize the importance of engaging registered dietitians to enhance health outcomes in patients. Post baccalaureate students interested in graduate nutrition education that meet the prerequisite requirements will also be considered for admission.

## 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:

- efficiently and effectively equip professionals to meet federal and state demands for quality
- 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
- 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:

- implementing evidence-based and research-based instruction
- using data from formal and informal assessments to guide instruction, and
- 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.

## Child Welfare Practice

The Child Welfare Practice graduate certificate is a specialization that prepares students for advanced practice with children and families who experience abuse and neglect. Both public and private child welfare settings will be examined with special emphasis on improving outcomes for these children and families. The certificate course work focuses on the complex factors that contribute to maltreatment and neglect, and emphasizes intervention strategies including evidence-based practices and process models. This is a post-baccalaureate certificate, so students do not need to be enrolled in a graduate program to apply.

## 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:

- 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
- professionals in postgraduate training at UK, including residents and fellows in the college of medicine, college of pharmacy and college of dentistry
- graduate students in health-related PhD and MS programs
- project managers and other staff members interested in contributing to clinical and translation science
- professionals practicing in the community

## Clinical Social Work

The Clinical Social Work graduate certificate prepares students for advanced practice in clinical social work. The certificate is designed to move students from the broader foundation of generalist social work practice to an advanced level of clinical knowledge and skills including application of social work practice in a variety of clinical settings. This certificate in Clinical Social Work examines psychopathology, assessment and evidence-informed treatment strategies and will provide an educational foundation to help prepare practitioners who seek clinical social work positions.

## 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.

## College, Career, and Civic Life Teaching and Learning

The graduate certificate in College, Career, and Civic Life 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 (HDI 600, 602 and 604) and one practicum course (HDI 603) are required for the certificate. In addition to the required courses, two or three hours of elective course work is also required; either HDI 601, HDI 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.

## Diversity and Inclusion

The graduate certificate in Diversity and Inclusion is an online, 12 credit hour certificate designed for a wide range of professional backgrounds in recognition of our increasingly diverse world and workplaces. The certificate provides both the knowledge and tools to develop, promote, and support inclusive environments through 8-week, online courses designed by faculty. Skills and knowledge gained through the certificate are highly sought after by today's employers and would be beneficial to business administrators, health care professionals, government employees, educators, and non-profit organizations.

## 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
- 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.

## Executive Educational Leadership

The Graduate Certificate in Executive Educational Leadership is designed for school system leaders. The courses (EDL 676, EDL 677, EDL 678, EDL 682) correspond to the [Kentucky Superintendent Licensure](#) program and thus are a good fit for district-level leaders. In particular, this program is useful for private school and international school system leaders such as the role of Headmaster.

## Explosives and Blasting

The graduate certificate in Explosives and Blasting offers a formal education in the use of explosives for commercial applications such as mining and civil engineering. Those disciplines require the use of explosives to fracture and remove the rock, to extract valuable minerals or to emplace infrastructure. The curriculum is designed for mining and civil engineers or other engineering or related professionals that need to increase their knowledge in explosives and blasting. Significant areas include a review of basic concepts of explosives and blasting, advanced blast design, instrumentation for blasting, and the environmental aspects of blasting. The Explosives and Blasting Graduate Certificate is authorized to be delivered via online or hybrid format to students who are physically located in SARA member states and territories. Students who are residents of Kentucky have a waiver of 12 months towards the state blasting license.

## Family and Consumer Sciences

The Family and Consumer Sciences graduate certificate program provides students with the knowledge and skills to positively impact the quality of individual and family life. The coursework provides students with the ability to amplify critical-thinking skills to address problems in diverse family, community, and work environments. Program graduates will enhance capacity-building skills that empower individuals and families to thrive in an ever-changing society. The 12-hour certificate is available to graduate students, as well as to practicing professionals and may be taken as a stand-alone program or as a part of a graduate degree program. The Family and Consumer Sciences graduate certificate is designed to partially meet the elective concentration component of the MS in Science Translation and Outreach.

## Fundraising and Development

The graduate certificate in Fundraising and Development is designed to provide critical fundraising education to those who are currently working or seeking employment in nonprofit organizations. Nonprofit organizations across the United States are dependent on educated and skilled fundraisers. According to the National Center for Charitable Statistics there are more than 1.5 million registered nonprofit organizations – nearly all dependent on raising contributed income through fundraising efforts. Educational institutions, health, human services, relief agencies, arts and religious organizations are all reliant on donated funds to serve their beneficiaries. Therefore, knowledgeable fundraisers are needed to direct these efforts. Competition for fundraising has resulted in a strong job market and created a greater need for skilled and educated fundraisers.

## Gender and Women's 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:

<https://gws.as.uky.edu/gws-graduate-certificate>

## 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.

## 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
- 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 Coaching

The graduate certificate in Instructional Coaching prepares veteran educators to lead job-embedded professional development efforts in P-12 schools. The two required courses (ELS Leadership in Communities of Practice, EDL 638 Instructional Coaching and Mentoring) and an elective course (ELS 600 Leadership in Learning-Centered Schools, EDL 669 Leadership for Creative Problem Solving, or ELS 624 Leadership Practicum) provide leadership development focused on facilitating teacher teams, coaching novice and veteran teachers, solving problems creatively, and supporting adoption of innovation and renewal initiatives. This certificate is one of four offered by the Department of Educational Leadership Studies.

## 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
- 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 postbaccalaureate 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 American, Caribbean, 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 MA and PhD 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.

## 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.

## Leadership for Deeper Learning

The graduate certificate in Leadership for Deeper Learning examines the systemic changes to teaching and learning within schools. The courses within the certificate (EDL 662 Leading for Next Generation Learning, EDL 664 Assessment Leadership, ELS 620 Leading Action Research and Inquiry 1) focus on inquiry learning, project-based learning, performance assessments, competency learning models, and a variety of other components of systems of teaching and learning that provide deeper, more equitable learning opportunities for students in educational organizations. This certificate is one of four offered by the Department of Educational Leadership Studies.

## 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.

## Liberal Studies

There is a persistent and growing demand among employers for workplace professionals who possess strong communication, research, and critical thinking skills beyond those attained as undergraduates. These skills can be difficult for people to continue developing after completion of the initial Bachelor's degree.

Drawing on the Liberal Arts disciplines, the Online Graduate Certificate in Liberal Studies offers students the possibility to develop proficiencies from among a cluster of significant employment-related skills, such as critical and complex thinking, clear writing and communication, effective collaboration, research, cultural literacy, and awareness and sensitivity to the context and historical attributes of key issues in today's society.

The certificate's flexible curriculum allows students to easily tailor highly individualized programs of study to their own pace. The certificate will augment students' career and professional opportunities by helping them to become better decision makers; more effective strategists and thinkers; better leaders and team members; more socially and historically aware citizens; and more adept writers and communicators.

The Graduate Certificate requires 12 credit hours of coursework including one core course (PHI 522 Advanced Critical Thinking) and three additional courses from the list of approved courses (students must take courses from at least two of the five fields of inquiry).

## 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.

## Musculoskeletal Injury Management

The Graduate Certificate in Musculoskeletal Injury Management is designed to provide advanced education and clinical experience for credentialed clinicians (i.e. Athletic Trainers, Physical Therapists, Occupational Therapists, Physicians, Physician Assistants, etc.) that manage injuries in physically active populations. Graduates from our program will emerge as advanced clinicians with post-professional knowledge and clinical experience that will be highly competitive for positions providing healthcare services in a variety of employment settings (i.e. traditional athletics, physician's clinic, out-patient rehabilitation setting, occupational setting). Students will receive focused coursework that provides advanced didactic education related to mechanisms of musculoskeletal injury and current evidence for clinical management of these conditions. We will couple this with hands-on laboratory learning that will advance the learners knowledge, skills and abilities related to evaluation and treatment of musculoskeletal injuries. Students enrolled in this certificate program who hold the athletic training credential may be eligible for an Athletic Training Fellowship. These Fellowships will provide students the opportunity to work as an Athletic Trainer with one of our clinical partners to provide athletic training services in a variety of settings, including collegiate, high school and middle school athletics.

## 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.

## Nonprofit Management

The Graduate Certificate in Nonprofit Management is designed to provide skills to support graduate students and professionals in leading, directing, and managing organizations in the nonprofit sector. The certificate benefits students seeking careers in the nonprofit sector, professionals currently working in the nonprofit sector, and government employees transitioning to the nonprofit sector. The certificate includes 12 credit hours comprised of three mandatory classes and one elective focused on unique aspects of the nonprofit sector including management, finance, and organizational operations. The graduate certificate can be obtained as a stand-alone program but can also be integrated with other degrees offered by the Martin School of Public Policy and Administration. The certificate also offers flexibility as students may complete the program partially or fully online. Two of the required courses are offered in the traditional, face-to-face modality each fall, so students can choose to take those sections or the online sections. The spring courses are only offered online. For more information visit <https://martin.uky.edu/>

## 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)

- a. 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.

## 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.

## Positive Youth Development

The graduate certificate in Positive Youth Development (PYD) is designed to provide students with a background in PYD frameworks and how these can be used to create intentional learning experiences in non-formal educational situations. This 12 credit-hour certificate includes 9 hours of required courses and 3 hours in an elective selected by the student. Completion of this program provides basic competency in the science of PYD at the graduate level along with documentation of their abilities. The certificate is accessible to participants from a wide range of disciplines and backgrounds and is available fully online. The certificate will provide students with the knowledge base they need to demonstrate an understanding and commitment to PYD principles and their intentional inclusion in non-formal learning experiences.

## 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.

## Power Systems

The online Graduate Certificate in Power Systems is designed to provide students with the core knowledge and latest advancements in power systems analysis, modeling, operation, control, optimization, and integration of renewable energies, and produce well trained graduates in this specialty. Students will learn the theory in various aspects of power systems and master the tools and techniques for planning and operating power systems and solving real-world problems.

The credits earned through this certificate will count towards the MS or PhD degree in electrical engineering if the students decide to continue their graduate studies at UK.

## Professional and Technical Writing

The Graduate Certificate in Professional and Technical Writing provides immediate workplace skills and knowledge in organizational writing, manual writing, policy writing, technical writing, grant writing, and technical legal writing. It is designed for working professionals who are interested in continuing their education in professional and technical writing. All courses are online, and the certificate can be completed in a flexible and timely manner.

## Public Financial Management

The Martin School of Public Policy and Administration offers a fully online Graduate Certificate program in Public Financial Management. This program is attractive to students desiring an introduction of class offerings in public financial management. The 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 master's program in that area. Students may apply the coursework towards the corresponding Master's in Public Financial Management upon completing the graduate certificate. The graduate certificate includes 4 mandatory courses (PA 631, PA 632, PA 625, PA 627) focused on public financial management, public funds management, and governmental accounting and auditing. The courses are offered annually, allowing students to complete the certificate in two semesters. The Graduate Certificate in Public Financial Management is designed to meet the current and expanding national demand for well-trained financial managers for public and non-profit organizations. The curriculum can also be a desirable means of professional development training for employees in the public sector. The Graduate Certificate in Public Financial Management is approved by the Kentucky Department of Education to qualify for mandatory continuing education credits for school finance/budget officers. For more information about this program visit <https://martin.uky.edu/>.

## 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 certificate in School Social Work 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 of 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 MA and PhD 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.

## Sport, Fitness, and Recreation Management

This 12-credit graduate certificate in Sport, Fitness, and Recreation Management is designed for current professionals to increase their understanding of leadership skills and principles. The graduate certificate will offer students the opportunity to be a part of the University of Kentucky tradition, while also advancing a knowledge base in leadership principles including but not limited to: legal issues, policy & governance, and historical foundations of athletics.

## 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 PhD degree or while enrolled in post-baccalaureate status.

## Structural Engineering

Expand and deepen your expertise in structural engineering analysis and design. The online Graduate Certificate in Structural Engineering is designed to provide all engineering students with core knowledge in prestressed concrete, steel structures and matrix structural analysis. The courses will be beneficial to current engineering students and practicing engineers. The Certificate offers three (3) courses, 3-credit hours each, to provide technical skills required to develop more sustainable and resilient infrastructure. The courses can be applied toward graduate degrees in civil or other engineering fields. Additionally, each course can provide significant professional development hours that potentially satisfy a state's Engineering professional licensing requirements.

## 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.

## Teaching in Culturally and Linguistically Diverse Classrooms

The graduate certificate in Teaching in Culturally and Linguistically Diverse Classrooms addresses increasing demand to prepare teachers to better address the learning needs of K-12 classrooms with increasing cultural and linguistic diversity among students. Certificate coursework takes a comprehensive approach to supporting English Learners and other historically under-served populations by addressing aspects of cultural and linguistic diversity across the curriculum within a regular classroom context. Coursework supports students in developing a knowledge base, planning, and application of strategies related to language and literacy development, second-language acquisition, classroom relationships, family collaboration, assessment, instruction, discourse, and socio-political consciousness.

## Telehealth

This one-year 9-credit online interprofessional certificate methodically prepares you to be a leader in the development, implementation, and evaluation of telehealth models. Course content will cover information relevant to telehealth use across generations and associated contexts of care (e.g., medical, schools, home). Upon completion of the certificate, you will be able to:

1. Implement telehealth in a variety of settings with diverse patient populations across the lifespan in accordance with professional ethics and state and federal rules and regulations.
2. Train support personnel to assist the healthcare provider and patient during a telehealth encounter.
3. Develop, market, and evaluate a telehealth program considering multiple levels, including consumer, provider, organization, community, and policy.
4. Use interprofessional practices within a telehealth model.

## Tobacco Treatment Specialist

The Tobacco Treatment Specialist Graduate Certificate provides extensive knowledge and counseling skills training for treating tobacco dependence, the number one cause of preventable death and disease. The certificate content is divided into three 3-credit hour courses (NUR 621, 622 and 623) and is valuable to persons working in healthcare, including behavioral health, health promotion and prevention, and public health. Participants will critically review the literature on tobacco products and use, health effects, treatment, prevention, and policy. The certificate is an extension of the accredited BREATHE Tobacco Treatment Specialist Training. Successful completion of this program will provide participants with a certificate that can be used as eligibility to apply for a national certificate in tobacco treatment practice.

## 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 DMS degree program of the school of music. The certificate requires the completion of 15 credit hours.