Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

Full Proposal - Basic Info

Institution :	Western Kentucky University
Program Type :	Single Institution
Program Name :	Environmental and Occupational Health Science
Degree Level :	Master's
Degree Designation :	MASTER OF SCIENCE
CIP Code (2-Digit) :	51-HEALTH PROFESSIONS AND RELATED PROGRAMS.
CIP Code :	51.2202-Environmental Health.

Academic Unit (e.g. Department, Division, School) :	Department
Name of Academic Unit :	Public Health
Name of Program Director :	Dr. Ritchie Taylor and Dr. Vijay Golla

Intended Date of Implementation :	1/1/2015
Anticipated Date for Granting First Degrees :	12/15/2016
Date of Governing Board Approval :	7/25/2014

Institutional Contact Information

First Name :	Sylvia
Last Name :	Gaiko
Title :	Planning and Program Development
Email :	sylvia.gaiko@wku.edu
Phone :	270-745-8985

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

Full Proposal - Mission: Centrality to the Institution's Mission and Consistency with State's Goals

1. List the objectives of the proposed program. These objectives should deal with the specific institutional and societal needs that this program will address.

This graduate program is designed to enhance the educational opportunities for environmental and occupational health science professionals. The program will:
• Provide students with an in-depth exposure to methodologies to assess hazards and improve health in the built, occupational, and natural environments.
• Engage students in applied research and service learning at the local, regional, and global scales.
• Provide students with a foundation to evaluate environmental and occupational issues that impact human health and the environment.
• Develop students' application of research, data analysis, monitoring, and communication methods used to solve environmental and occupational health problems.
• Provide students with opportunities for practice learning through internships, international programs, and research.
• Allow students to conduct research focused on the protection of human health and prevention of health hazards in occupational and natural environments.
• Provide students with the skills to communicate environmental and occupational risks to promote and protect the health of the public.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

2. Explain how the proposed program relates to the institutional mission and academic strategic plan.

As the vision of Western Kentucky University is, “A Leading American University with International Reach”, the Environmental and Occupational Health Science graduate program will be built upon this vision. Already, the faculty and students in the Department of Public Health are extremely diverse, and we have initiatives that extend our reach into our community locally and internationally. For example, we currently are part of an international service-learning program in the Caribbean.

The Environmental and Occupational Health Science graduate program at Western Kentucky University will prepare students to be productive and engaged leaders in a global society. As such, the program will follow the mission of WKU. Through the program’s thesis research and internship requirements, opportunities will be provided to students, faculty, and constituents for teaching, research, and service. These opportunities will be local, regional, national, and international in scope. Likewise, the Environmental and Occupational Health Science graduate program will foster a high quality of life in the region by providing research and service in the protection of human health and environment, serving to reduce the impact of environmental hazards on human health, and developing innovative solutions.

The objectives support the statewide postsecondary education strategic agenda by preparing students to succeed in a global economy. Kentucky is home to many global industrial facilities. Students who graduate from this program will be highly marketable in this arena.

Statewide Postsecondary Education Strategic Agenda:

The statewide postsecondary education strategic agenda will be addressed by graduates through the application of environmental and occupational health competencies of assessment, management, and communication. As such, graduates from the program will be “informed, competent, knowledgeable, and engaged” in addressing the multitude of facets related to environmental and occupational health. Industry leaders are increasingly desirous of employees who have research and data analysis skills, as well as a firm understanding of environmental and occupational health challenges. Collectively, these skills can be related to the anticipation, recognition, evaluation, and control of challenges in environmental and worksite settings. The integrative nature of the graduate program will ensure the stated value of “engagement with business, industry, and other community partners to improve economic vitality and quality of life”. Students will engage with business, industry and other community partners through research, service, and internships in environmental and occupational health. In meeting such a need, students graduating from the proposed program will have the skill set necessary to contribute to this trend at the national and international level, as well as across the Commonwealth. In accordance with the stated value of “access for all who are committed to the pursuit of higher learning” the program will remain open to all students admitted to the Graduate School of Western Kentucky University.

Statewide Strategic Implementation Plan:

Included in the statewide strategic implementation plan is the core idea of balancing quality and quantity or balancing the need for high-quality credentials that allow individuals to be successful with the demand to increase degree production. The proposed graduate program will contribute to this effort by expanding the existing undergraduate programs in Environmental Health Science, Occupational Safety and Health, and Worksite Health Promotion and allowing students opportunities to access graduate studies in the central area of their primary interest and need, thus “strengthening current programs and expanding new ones” to help control costs, at the individual, institutional and state level.
The CIP code for this program is one of the CIP codes within the Science, Technology, Engineering, and Mathematics (STEM) disciplines. One of the performance metrics for the statewide strategic implementation plan is related to the “degrees and credentials in the science, technology, engineering, mathematics, and health-related fields.” The proposed program will fulfill this metric.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

3. Explain how the proposed program addresses the state's postsecondary education strategic agenda.

The statewide postsecondary education strategic agenda will be addressed by graduates through the application of environmental and occupational health competencies of assessment, management, and communication. As such, graduates from the program will be "informed, competent, knowledgeable, and engaged" in addressing the multitude of facets related to environmental and occupational health. Industry leaders are increasingly desirous of employees who have research and data analysis skills, as well as a firm understanding of environmental and occupational health challenges. Collectively, these skills can be related to the anticipation, recognition, evaluation, and control of challenges in environmental and worksite settings. The integrative nature of the graduate program will ensure the stated value of "engagement with business, industry, and other community partners to improve economic vitality and quality of life". Students will engage with business, industry and other community partners through research, service, and internships in environmental and occupational health. In meeting such a need, students graduating from the proposed program will have the skill set necessary to contribute to this trend at the national and international level, as well as across the Commonwealth. In accordance with the stated value of "access for all who are committed to the pursuit of higher learning" the program will remain open to all students admitted to the Graduate School of Western Kentucky University and will seek a diverse study body.

4. Explain how the proposed program furthers the statewide implementation plan.

Included in the statewide strategic implementation plan is the core idea of balancing quality and quantity or balancing the need for high-quality credentials that allow individuals to be successful with the demand to increase degree production. The proposed graduate program will contribute to this effort by expanding the existing undergraduate programs in Environmental Health Science, Occupational Safety and Health, and Worksite Health Promotion. Therefore, students will have opportunities to access graduate studies in their primary interest and need, thus "strengthening current programs and expanding new ones" to help control costs, at the individual, institutional and state level.
The CIP code for this program is one of the CIP codes within the Science, Technology, Engineering, and Mathematics (STEM) disciplines. One of the performance metrics for the statewide strategic implementation plan is related to the "degrees and credentials in the science, technology, engineering, mathematics, and health-related fields." The proposed program will fulfill this metric.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

Full Proposal - Quality: Program Quality and Student Success

1. List all student learning outcomes of the program.

The proposed Master of Science Degree in Environmental and Occupational Health Science and coursework are designed to provide graduate education for careers focused on the protection of human health and prevention of health hazards in occupational and natural environments. A key component of the program is to understand how exposure to environmental and occupational hazards occurs, and discovering ways to reduce and control the risk of exposure. This interdisciplinary field focuses on environmental hazards to human health, assessment of exposures, mechanisms of environmental response, control of risks associated with environmental hazards, improving occupational health, and protecting natural systems that support human health. Students will attain analytical and statistical analysis skills in the application of research methods in environmental and occupational health science. Key components of the program will include development of students' communication skills specific to environmental and occupational health research, both written and oral. Students will gain knowledge and skills in environmental health, biostatistics, epidemiology, environmental toxicology, and research methods that can be applied in their professional practice of environmental and occupational health science. This program is designed for working professionals and students desiring opportunities with industry, consulting firms, government agencies, and other environmental and occupational health science professions.

Specifically, students graduating from the program will:
• Develop the capacity to identify sources and compile relevant and appropriate information when needed, and the knowledge of resources to obtain the information.
• Analyze data, interpret and recognize meaningful results, and present the information in an appropriate way to different types of audiences.
• Evaluate the effectiveness or performance of procedures, interventions, and programs.
• Develop insight into and appropriate solutions to environmental and occupational health problems.
• Understand and appropriately utilize information concerning the economic and political implications of decisions.
• Function effectively within the culture of the organization and to be an effective team player.
• Plan, implement, and maintain fiscally responsible programs/projects using appropriate skills, and prioritize projects across the employee's entire workload.
• Utilize information technology as needed to produce work products.
• Produce reports to document actions, keep records, and inform appropriate parties.
• Form partnerships and alliances with other individuals and organizations in order to enhance performance on the job.
• Use the environmental health practitioner's frontline role to effectively educate the public on environmental health issues and the public health rationale for recommendations.
• Communicate risk and exchange information with colleagues, other practitioners, clients, policymakers, interest groups, media, and the public through routine activities, public speaking, print and electronic media, and interpersonal relations.
• Facilitate the resolution of conflicts within the agency, in the community, and with regulated parties.
• Articulate basic concepts of environmental health and public health and convey an understanding of their value and importance to clients and the public.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

2. Explain how the curriculum achieves the program-level student learning outcomes by describing the relationship between the overall curriculum or the major curricular components and the program objectives.

The proposed Master of Science Degree in Environmental and Occupational Health Science and coursework are designed to provide graduate education for careers focused on the protection of human health and prevention of health hazards in occupational and natural environments. A primary learning objective of the program is to understand how exposure to environmental and occupational hazards occurs, and discovering ways to reduce and control the risk of exposure. Students will be introduced to these objectives, as well as exposure assessment, in the core of the program, through PH 584 Principles of Environmental Health, PH 577 Environmental Toxicology, and EHS 572 Environmental and Occupational Epidemiology. Key components of the program will include development of students' communication skills specific to environmental and occupational health research, both written and oral. These skills will be engaged within the core of the program and specifically addressed in PH 501 Research Methods. Within the core courses students will gain knowledge and skills in environmental health, biostatistics, epidemiology, environmental toxicology, and research methods that can be applied in their professional practice of environmental and occupational health science. This interdisciplinary field focuses on environmental hazards to human health, assessment of exposures, mechanisms of environmental response, control of risks associated with environmental hazards, improving occupational health, and protecting natural systems that support human health. As such, the core courses will develop this foundation and the 12 hours of elective courses will provide detailed implementation of program objectives. Students will attain analytical and statistical analysis skills in the application of research methods in environmental and occupational health science in core and elective courses, as well as in the culminating experience.

3. Highlight any distinctive qualities of this proposed program.

The Environmental and Occupational Health Science program will focus on the study of the protection of human health from hazards found in the built, occupational and natural environments. The proposed program would be the first and only Master of Science in Environmental and Occupational Health Science program offered in the WKU service area and in Kentucky.

4. Will this program replace any existing program(s) or specializations within an existing program?

NO

5. Include the projected faculty/student in major ratio.

Year 1 – 1/2
Year 2 – 1/4
Year 3 - 1/4
Year 4 - 1/5
Year 5 - 1/6

6. Is there a specialized accrediting agency related to this program?

YES

Please identify the agency.

Accreditation Board for Engineering and Technology (ABET) or National Environmental Health Science and Protection Accreditation Council (EHAC)

Do you plan to seek accreditation?

YES

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

Please explain your plans for accreditation.

In preparation for accreditation we will begin the process of internal assessment. During this preparation phase we will implement the assessment process for educational objectives and student outcomes. It will take at least four years to demonstrate a continuous improvement loop, collect student work examples, and graduate several cohorts of students. During this time the program director and faculty will begin the review of accreditation criteria, accreditation policies and procedures, and self-study requirements of the chosen accrediting agency. It is anticipated that the program director and selected faculty members will seek training from the accrediting agency in program assessment. By the fourth year of the program the assessment process will be in place. At that time the program director will put in a request for evaluation to the chosen accrediting agency. As specified by ABET and EHAC, the accreditation review will be a 13 to 18 month period. Therefore, accreditation for this program could be in place within five to six years of the start date.

7. Attach SACS Faculty Roster Form.

Faculty Roster courses linked to MS in EOHS 10 20 14 Appendix A.pdf

8. A. Describe the library resources available to support this program. You may attach any documentation provided to SACS.

Western Kentucky University resources are adequate to meet this need. Electronic informational resources are widely available as described in the WKU Libraries research guide for Public Health, http://libguides.wku.edu/publichealth. This guide includes e-books, databases, journals, e-journals, websites, and portals. Printed books relevant to environmental and occupational health science are numerous in the WKU Libraries, as there are titles in support of the core and elective courses.

Specific to the EOHS M.S. degree, WKU Libraries has a growing collection of books and journals in the area of EOHS. Basic searches of the WKU Libraries “one search” portal for the terms “environmental health”, “occupational health”, and “occupational safety” yielded 455,391, 237,408, and 124,355 results, respectively. Additionally, there are numerous books and resources covering related topics in worksite health, environmental science, toxicology, water quality, air pollution, risk assessment, public health biology, environmental management, and environmental epidemiology, to mention a few. All courses that are included in the program, are existing courses, and have adequate library resources. We have more than 34 major journals in this field, as well as a dozen major databases. Our primary book vendor is Coutts Oasis; weekly updates are checked for new titles. The ebook format is preferred for books supporting online programs; our major ebook vendors are EBSCO, MyiLibrary, and R2 Library. Patron-initiated interlibrary loans are free of charge; average turnaround time for borrowing articles related to EOHS is 2.8 days.

Attached is a representative list of journals relevant to the EOHS degree that are accessible through WKU Libraries.

Journals from WKU Libraries.pdf

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

B. Describe the physical facilities and instructional equipment available to support this program. Physical facilities and instructional equipment must be adequate to support a high quality program. The proposal must address the availability of classroom, laboratory, and office space as well as any equipment needs.

An Environmental Health Laboratory is in place to support the proposed program. This laboratory offers equipment and supplies for biological, physical, and chemical analyses and assessment. Additionally, the laboratory has instruments and meters that faculty and students may use to evaluate environmental and occupational exposures. Advanced research laboratories for chemical and materials analyses are available to the program at the WKU Center for Research and Development. These laboratories and associated equipment will be sufficient to support the program in the near future. Additional laboratory space and equipment is available through collaborative research with other departments at WKU. Classroom facilities are available through the WKU College of Health and Human Services and the Department of Public Health. Each classroom is equipped with a smart lectern and includes a computer, projector, document camera, and audio and visual equipment. University computer labs are available for student use, as well as a computer lab and classroom in the College of Health and Human Services. Additionally, a number of software applications are available on lab computers that may be used by EOHS students. These include, but are not limited to, SPSS, SAS, ArcGIS, Microsoft products, and environmental and occupational health software installed on Department of Public Health computers.

9. Clearly state the admission, and retention, and completion standards designed to encourage high quality.

In addition to the WKU Graduate School requirements, admission requires the equivalent of an undergraduate major in environmental health science, including supporting courses in science and mathematics. Exceptions may be made for students with undergraduate degrees in other disciplines. However, additional courses may be required. Admission may be granted to applicants that fulfill one of the following conditions: GAP score of 550 and minimums of 139 for the GRE Verbal Score and 139 for the GRE Quantitative Score, a cumulative GPA from a U.S. accredited university of at least a 3.2 on a 4.0 scale, or a cumulative GPA of greater than 3.0 on a 4.0 scale in the Environmental Health and Safety graduate certificate program. International students must attain a minimum of 550 on the written TOEFL, a minimum of 213 on the computerized TOEFL, a minimum of 79 on the Internet TOEFL, or a minimum of 6.5 on the IELTS. To encourage the retention of quality students, all students must maintain a 3.0 GPA on a 4.0 scale to remain in good standing in the program. Any student whose GPA falls below 3.0 will be placed on probation and allowed one semester to remediate the GPA to a 3.0 or above. In order to complete the program a student must pass the culminating experience. The student must defend the culminating experience before a graduate committee. A pass for the culminating experience will require that if a student chooses to complete a thesis they must receive a grade of Pass in PH 599 Thesis Research/Writing or a letter grade of B or higher in PH 546 Graduate Internship. The culminating experience is for 6.0 credit hours.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

10. Clearly state the degree completion requirements for the program.

Total Hours = 36 credit hours

Core Courses (18 credit hours required)
1. PH 520 - Biostatistics for Public Health (3 hrs)
2. PH 577 – Environmental Toxicology (3 hrs)
3. PH 582 – Epidemiology: Practice and Theory (3 hrs)
4. PH 584 - Principles of Environmental Health (3 hrs)
5. PH 501 – Research Methods (3 hrs)
6. EHS 572 - Environmental and Occupational Epidemiology (3 hrs)

Electives (minimum of 12 credit hours required) – Graduate level elective courses may be selected from the lists below or from other disciplines, given that the course is pertinent to the program of study. The graduate advisor must approve all elective courses.

EOHS Electives
1. PH 510 - Watershed Management and Science (3 hrs)
2. PH 560 – Environmental Management and Risk Assessment (3 hrs)
3. PH 571 - Air Quality Management (3 hrs)
4. EHS 580 - Solid and Hazardous Waste Management (3 hrs)
5. PH 595 - Public Health Management of Disasters (3 hrs)

Worksite Health Promotion Electives
1. PH 502 - Health Promotion in the Workplace (3 hrs)
2. PH 575 - Health Education/Promotion Program Planning (3 hrs)
3. COMM 523 - Health Communication (3 hrs)
4. PH 587 – Health Behavior (3 hrs)

Culminating experience - students must choose a thesis or an internship – (6 credit hrs)

Plan A – Thesis Option – (PH 599 – Thesis Research/Writing - 6 credit hours)

Plan A requires that the student complete a thesis according to the requirements of the WKU Graduate School. A committee of at least three (3) faculty members will direct each thesis. Students will be required to develop a proposal, defend the proposal, complete thesis research, write the thesis document, and then present the thesis to faculty and students. Additionally, each student will orally defend their thesis before their graduate committee.

Plan B – Internship Option (Portfolio Option) – (PH 546 – Graduate Internship - 6 credit hours)

Plan B requires that a student complete an internship experience of 400 hours. As part of this option, each student must develop a portfolio that details the internship experience. Each portfolio will follow a rubric of required elements.

The graduate advisor, in conjunction with the EOHS internship coordinator, must approve the internship. Internships will require that the student keeps a daily log of activities, compiles weekly summaries, and documents the major objectives associated with the internship. The portfolio will include all internship documentation and the final presentation for the internship. Students completing the internship are required to make an oral defense of their portfolio to their graduate committee and present their work to faculty and students. Each portfolio must follow a rubric of required elements.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

Name	Total number of hours required for degree	Number of hours in degree program core	Number of hours in guided electives	Number of hours in free electives
Program	36	18	18	0

12. Describe how the proposed program will articulate with related programs in the state. It should describe the extent to which student transfer has been explored and coordinated with other institutions. Attach all draft articulation agreements related to this proposed program.

However, core courses within this program are common to Council on Education for Public Health (CEPH) accredited Master of Public Health (MPH) programs across the state. These core courses could be transferred from other institutions as determined by the program faculty. According to the WKU Graduate School transfer policy, only 12 hours of previous coursework may be transferred. All transfer students will be assigned an advisor and transfer of up to 12 hours of credit will be determined with the advisor approval. A syllabus of previous coursework may be requested to determine transferability.

13. List courses under the appropriate curricular headings.

Courses for EOHS program.pdf

14. Will this program utilize alternative learning formats (e.g. distance learning, technology-enhanced instruction, evening/weekend classes, accelerated courses)?

YES

YES	Distance learning
YES	Courses that combine various modes of interaction, such as face-to-face, videoconferencing, audio-conferencing, mail, telephone, fax, e-mail, interactive television, or World Wide Web
YES	Technology-enhanced instruction
YES	Evening/weekend/early morning classes
NO	Accelerated courses
YES	Instruction at nontraditional locations, such as employer worksite
NO	Courses with multiple entry, exit, and reentry points
NO	Courses with "rolling" entrance and completion times, based on self-pacing
NO	Modularized courses

Please describe planned alternative methods of program delivery involving greater use of technology, distance education, and/or accelerated degree designs, to increase efficiency, better address student educational and workforce needs, and maximize student success, for both traditional and non-traditional students.

To best meet the demands for the program we will explore use of online delivery methods, blended courses, and bi-term courses. Distance education will be facilitated through the use of Blackboard and videoconferencing. WKU uses the Adobe Connect software to facilitate videoconferences for online students. Once the program is established, the faculty will explore an accelerated executive program specifically designed for working professionals in the EOHS field. A model an executive program, Master of Health Care Administration, already exists within the WKU Department of Public Health.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

Full Proposal - Demand: Program Demand/Unnecessary Duplication

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

1. Student Demand:

a. Provide evidence of student demand at the regional, state and national levels.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

The new program will provide graduate studies specific to Environmental and Occupational Health Science professionals and students. Development of the new program was initiated due to inquiries made by potential students into the MPH Environmental Health program. Many of the inquiries did not result in students pursuing the MPH degree, as they wanted a graduate degree specific to Environmental and Occupational Health Science.

Professionals in the environmental and occupational health sciences fields within the Western Kentucky University region have limited opportunities for graduate study specific to their profession. Currently, an Environmental and Occupational Health Science graduate program does not exist in Kentucky. An undergraduate Environmental Health Science degree is offered within the Western Kentucky University, Department of Public Health, as well as a Master of Public Health degree with a concentration in Environmental Health. A similar program exists at Eastern Kentucky University. However, it is offered as a concentration within a Master of Public Health Program, just as the WKU Department of Public Health has an Environmental Health concentration in the Master of Public Health degree. Eastern Kentucky University does not have a stand-alone Environmental Health Science graduate program. The proposed program would be the first and only Master of Science in Environmental and Occupational Health Science program offered in Kentucky. Currently, the nearest accredited program is East Tennessee State University. This program is a Master of Science Program in Environmental Health. Other programs accredited by the National Environmental Health Science and Protection Accreditation Council include California State University, East Carolina University, Mississippi Valley State University, Old Dominion University, University of Findlay, and University of Illinois, Springfield.

The field of environmental scientists and specialists, including health in Kentucky is expected to grow faster than the average (11%) for all occupations (U.S. Bureau of Labor Statistics, 2014). This field is expected to increase by 15% between 2012 and 2022 in Kentucky (Kentucky Labor Market Information, 2014). Public interest in hazards facing the environment and communities is expected to increase demand for this occupation. As the population increases, there will be more opportunities for environmental protection and compliance (Kentucky Labor Market Information, 2014).

Environmental consulting in the private sector should provide the fastest job growth in the environmental scientists and specialists, including health sector, in Kentucky (Kentucky Labor Market Information, 2014). Many consulting firms hire these professionals to help businesses and government address issues related to underground storage tanks, land disposal areas, environmental compliance, and other hazardous waste management services. In the environmental scientist field, there is a shift from investigations to preventive management, which will provide many new opportunities for additional job growth. Typical degrees for this field are environmental science or environmental health (Kentucky Labor Market Information, 2014).

Other occupations applicable to the proposed degree are occupational health and safety specialists, health and safety engineers, occupational health and safety technicians, and environmental science and protection technicians, including health. Each of these occupations is expected to experience growth through 2022 as indicated in the Bureau of Labor Statistics, U.S. Department of Labor's, Occupational Outlook Handbook (2014). The least growth expected, 2012-2022, is 7% for occupational health and safety specialists. All other occupations listed are projected to grow by 11% to 19% (Bureau of Labor Statistics, 2014).

Although occupational health and safety specialists are only expected to grow by 7% for the period of 2012-2022 in Kentucky, a survey conducted by faculty in the Department of Public Health, as discussed below, indicated that about 92% of the respondents think a specific graduate program is needed. This is further supported in review of the data regarding education level requirements for Occupational Health and Safety Specialists (Kentucky Labor Market Information, 2014). The Kentucky Labor Market Information (2014) indicates the following for Occupational Health and Safety Specialists:

"Despite slower than average employment growth, job opportunities for individuals with advanced degrees are expected to be good. Further, it was noted that Candidates with certification might enjoy more job opportunities. In addition, a large number of currently practicing occupational health and safety specialists are expected to retire over the coming decade, creating opportunities for new specialists".

Environmental compliance inspectors are the last related occupation to report. This occupation is expected to grow slower

than average (5%) from 2012 to 2022 at the national scale (U.S. Bureau of Labor Statistics, 2014). However, similar to the occupational health and safety specialists, the education level most reported is a Bachelor's Degree, 87.7% of respondents. Only 8.8% reported to have a post post-baccalaureate certificate, while only 1.75% reported having a Master's degree (U.S. Bureau of Labor Statistic, 2014). This information shows that growth can be expected to occur in Master's programs related. Especially as individuals in this occupation seek to be promoted. For example, based on conversations with an alumnus, environmental compliance professionals for Kentucky earn a salary increase for each 15 hours of education beyond the baccalaureate level. This creates a unique niche for the proposed program.

Wage data is reported in Table 1 for the various occupations discussed. Information for wages in Kentucky was acquired through Kentucky Labor Market Information (2014). Wage data for the nation was available through the Bureau of Labor Statistics (2014). Wages for occupations in Kentucky, related to the proposed degree, ranged from $43,747, minimum mean, to $96,268, maximum for experienced. National wage data showed the minimum median to be $41,240 and the maximum top 10% to be $118,750.

Table 1. Average and median wage data for the occupations related to the proposed EOHS Master of Science Degree in Kentucky (KY) and the Nation (Median/Top10%).
Environmental scientists and specialists, including health: KY: $55,933/$83,345; Nation (Median/Top10%):$63,570/ $109,970
Occupational health and safety specialists: KY: $62,044/$86,794; Nation (Median/Top10%): $66,790/$97,380
Health and safety engineers: KY: $69,202/$96,268; Nation (Median/Top10%): $76,830/$118,750
Environmental compliance inspectors: KY: $51,269/$76,345; Nation: N/A
Occupational health and safety technicians: KY:$43,747/$83,175; Nation (Median/Top 10%): $47,440/$75,200
Environmental science and protection technicians, including health: KY:$44,427/$68,696; Nation(Median/10%): $41,240/ $68,620
1 Kentucky Labor Market Information, 2014
2 U.S. Bureau of Labor Statistics, 2014

To further assess the need for graduate studies specific to Environmental and Occupational Health Science we conducted a survey of 97 professionals, alumni, and students in the spring semester of 2013. The sample was made up of 33.3% students and 66.7% professionals in the environmental and occupational health science fields in Kentucky, centered in South Central Kentucky. A response rate of 38.1% (37) was attained. Survey results indicated that the major fields of study that impact respondents' current job or position are environmental management, occupational safety and health, industrial hygiene, and statistics. Respondents reported major responsibilities to be preparation of technical reports (81.1%) and data analysis (73.0%). Additional responsibilities reported were evaluation of procedures and programs (62.2%), project management (62.2%), occupational safety and health management (56.8%), environmental monitoring (56.8%), policy and regulatory analysis (54.1%), environmental compliance (54.1%), and environmental management (51.4%). Respondents were asked, "What graduate degree would be best suited for your professional advancement?" Responses (35) to this survey question indicated a Master of Science in Environmental and Occupational Health Science (22.9%), Master of Science in Environmental Health and Safety (20.0%), Master of Science in Occupational Safety and Health (17.1%), a Master of Science in Environmental Management (17.1%) or a Master of Science in Environmental Health Science (14.3%). In review of the 35 responses to this question, only 8.6% indicated a Master of Public Health in Environmental Health. Two respondents listed other degrees; these were Master of Science in Safety and Health Management, and Master of Science in Industrial Hygiene. Due to the varied nature of job requirements reported, respondents selected degree titles that included the words environmental and/or occupational. Finally, when respondents were asked, "In your opinion, is a graduate degree specific to your professional field needed in the Western Kentucky region?" a total of 33 (91.7%) respondents selected "Yes" and three (8.3%) respondents selected "No", with one respondent skipping the question.

Enrollment projections for the EOHS M.S. degree, as shown in the corresponding degree table, are derived from an Environmental Health Science (EHS) alumni and professionals survey, discussed above, a survey of current EHS undergraduate students of junior and senior standing, enrollments in the MPH Environmental Health concentration and EHS graduate certificate, as well as market projections for employment of environmental and occupational health science

professionals. The projections include 8 new students in Year 1 (8 total students), 8 new students in Year 2 (16 total students), 9 new students in Year 3 (17 total students), 10 new students in Year 4 (19 total students), and 12 new students in Year 5 (22 total students). Students are estimated to take 9 credit hours per semester (18 credit hours per year for 2 years) at the resident graduate tuition rate with a 3% tuition escalator per year.

A survey of current EHS undergraduate students of junior and senior standing (n=25), with 10 respondents, indicated that 80% of respondents (n=8) plan to attend graduate or professional school. When asked, “Would you enroll in the proposed M.S. in Environmental and Occupational Health Science at Western Kentucky University?” a total of 5 (50%) respondents selected “Yes” and 4 (40%) indicated they would consider enrolling in the program. Therefore, of all respondents, 90% indicated they would enroll in the program or consider enrolling in the proposed EOHS M.S. degree.

Current enrollment in the Environmental Health Concentration of the MPH program is 19 students. There are two additional students enrolled in the graduate Environmental Health and Safety Certificate program that would matriculate into the proposed program. The projected enrollments in the proposed EOHS program are in line with current enrollments in the related Environmental Health concentration of the MPH program. Additionally, we have developed a list of students outside of the current programs that have inquired about a graduate degree specific to Environmental and Occupational Health Science.

Worksite Health Promotion (WHP) is a field that has seen phenomenal growth in the past few decades. Results from the Towers Watson/National Business Group on Health 2011/2012 “Staying@Work” study reveals that essentially all respondents (U.S. and Canada) expect their organization’s support of health and productivity programs to increase over the next two years. The high cost of health care, loss of productivity due to occupational related illness and injury, and chronic diseases, resulting from poor health habits of employees are forcing American businesses to consider prevention strategies over the more traditional medical, or treatment model, to stay competitive in a global marketplace. According to Buck Consultant’s 2010 Global Wellness Survey, health promotion programs are most prevalent in North America, where they are offered by 74 percent of surveyed employers, but health promotion programs are increasing throughout the world, with 41 to 49 percent of surveyed employers providing programs to their employees in all regions outside North America.

The WHP workforce currently is an assortment of individuals with varying backgrounds and training. While many individuals chose this field, others were assigned to manage their health promotion programs due to the convenience of their positions within their company, such as human resource professionals or occupational nurses, while having this role added to their list of responsibilities. Although many of these individuals may have highly desirable job skills, the challenge is to find individuals who have been formally trained to plan, implement, and evaluate programs, practices and policies related to successful worksite health promotion management. According to the U.S. Bureau of Labor Statistics (2010), the 2010-2020 job outlook for health educators in the U.S. workforce is a 37 percent growth rate, which is much faster than the average for all occupations. The report notes that this growth is driven by efforts to reduce healthcare costs by teaching people about healthy habits and behaviors. Given the recent requirements mandated by the 2010 Affordable Care Act, the time has come to require that those entering the WHP field are formally prepared with the knowledge and skills needed to be successful in this dynamic environment.

To assess the need for student demand a survey was conducted October 2012 throughout the state of Kentucky on The Partnership for a Fit Kentucky’s website to review the interest in graduate curriculum in worksite health promotion. The skills of program planning, evaluation, health communication, policy, financial strategies and marketing were addressed. There was a 51% return rate with 70.7% of those who participated answered that they would be interested in graduate curriculum in the worksite health promotion field.

Based upon the market, which includes past experience with students not desiring to pursue the MPH with a concentration in Environmental Health and the results of the survey, stating the need for graduate studies in Environmental and Occupational Health Science, the new graduate degree program is proposed. The proposed program will be an extension of the existing Environmental Health Science undergraduate program, the Environmental Health and Safety graduate certificate, and the Advanced Worksite Health Promotion Certificate. Additionally, all courses for the proposed program are existing courses.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

b. Identify the applicant pool and how they will be reached.

The applicant pool for this program consists of students that graduated from the undergraduate program in Environmental Health Science, students with an undergraduate degree in science with an interest in EOHS, and working professionals in the environmental and occupational compliance, emergency management, and occupational safety and health fields. Previous students at WKU will be reached through their WKU email account. Likewise, we will employ social media to stay in touch with students throughout their professional careers. Internet tools such as LinkedIn will be used to track previous students. To attract students on campus to the degree program we will pursue a training program through the National Institute of Occupational Safety and Health (NIOSH) of the Centers for Disease Control. Currently, a training grant is in place for the undergraduate program in Environmental Health Science. Social media will be used to advertise to working professionals, as well. Additionally, we will seek to advertise the program in trade journals, through other departments on campus, and across the state at conferences.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

c. Describe the student recruitment and selection process.

Students will be recruited from our NIOSH training grant supported undergraduate program in Environmental Health Science. Students in this program take part in the Environmental Health Science Student Association and will have many opportunities, through meetings and seminars, to be introduced to the graduate EOHS program and employment opportunities. Once the EOHS graduate program is established, we will seek a NIOSH training grant that will provide up to $50k per year to support graduate students. These scholarships will be used as a recruitment tool. In an effort to increase diversity, we will designate a portion of grant scholarship funds to support minority students.

Efforts to offer honors sections of undergraduate Environmental Health Science courses are in place for the spring of 2015. This will serve as a recruiting avenue for WKU Honors College students in the sciences, and to introduce them to the EOHS field and to opportunities for graduate study. The Department Head will also meet with WKU graduate recruiting and admissions staff to inform them of program opportunities.

Brochures and literature describing the EOHS program will be produced and made available to the institutional graduate recruitment staff. Program support staff will send mailings to previous graduates of the undergraduate program, environmental health science advisory board members, and to EOHS related offices with area industries, businesses, and local health departments. Core faculty will be available to make presentations to students in the undergraduate programs in the WKU College of Health and Human Services, as well as WKU Ogden College of Science and Engineering. Presentations will describe the nature of the EOHS program and the available career opportunities that exist in the field, especially in the application of STEM related disciplines within EOHS.

The Environmental Health Science Advisory Board is another effective recruiting tool that will publicize the program and discuss potential opportunities with perspective students. Many of the members of the advisory board have up to a Bachelor of Science degree. We expect that at least half of the members of this board will pursue the EOHS M.S. degree. Our existing student body, through the Environmental Health Science Student Association will assist in recruiting efforts through “word of mouth” advertising, by displaying posters, organizing picnics, and other social events with the WKU student body. Plans are in place to use the Environmental Health Science student association to help recruit students into the EOHS program. We are exploring the concept of “EOHS Student Ambassadors”. Students selected as ambassadors would be awarded incentive scholarships for recruiting students into the EOHS program.

A powerful tool will be our use of technology to recruit students and advertise the new EOHS program. We will use social media, especially LinkedIn, to target professionals in the EOHS field. From our survey, we have found that most of the students that have graduated from the undergraduate program have not pursued a graduate degree. Many of these graduates are on LinkedIn and we now have a powerful tool to disseminate information. Lastly, the newly revised Department of Public Health web site has proven to be a valuable informational and recruiting tool and has increased our efforts and effectiveness in this regard.

In addition to Graduate Studies requirements, admission requires the equivalent of an undergraduate major in environmental health science, including supporting courses in science and mathematics. Exceptions may be made for students with undergraduate degrees in other disciplines. However, additional courses may be required. Admission may be granted to applicants that fulfill one of the following conditions: GAP score of 550 and minimums of 139 for the GRE Verbal Score and 139 for the GRE Quantitative Score, a cumulative GPA from a U.S. accredited university of at least a 3.2 on a 4.0 scale, or a cumulative GPA of greater than 3.0 on a 4.0 scale in the Environmental Health and Safety graduate certificate program. International students must attain a minimum of 550 on the written TOEFL, a minimum of 213 on the computerized TOEFL, a minimum of 79 on the Internet TOEFL, or a minimum of 6.5 on the IELTS.

d. Identify the primary feeders for the program.

Primary feeders for this program are STEM related undergraduate degrees. In particular, degrees that provides students with a background in biology, chemistry, mathematics/statistics, environmental health, environmental science, and occupational health and safety.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

e. Provide any evidence of a projected net increase in total student enrollments to the campus as a result of the proposed program.

Based on survey results and contacts from prospective students, an estimate of net student increase ranges from six to eight students for the M.S. in EOHS in year one. Projected net enrollment increase is up to 22 students by year 5 of the program. Survey results with EOHS professionals and students indicate these numbers are achievable. Additionally, this is within the net enrollment strength of the current MPH degree program.

The impact to net enrollment will not be relegated to the M.S. in EOHS. Program exposure garnered by the students and faculty will generate net enrollment gains in the undergraduate Environmental Health Science degree and the certificate programs. Specifically, the graduate Environmental Health and Safety certificate program is an entry point into the M.S. in EOHS and net enrollments will increase.

f. Project estimated student demand for the first five years of the program.

Academic Year	Degrees Conferred	Majors (Headcount) - Fall Semester
2015-2016	0	8
2016-2017	8	16
2017-2018	8	17
2018-2019	9	19
2019-2020	10	22

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

2. Employer Demand:

a. Describe the types of jobs available for graduates, average wages for these jobs, and the number of anticipated openings for each type of jobs at the regional, state, and national levels.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

The field of environmental scientists and specialists, including health in Kentucky is expected to grow faster than the average (11%) for all occupations (U.S. Bureau of Labor Statistics, 2014). This field is expected to increase by 15% between 2012 and 2022 in Kentucky (Kentucky Labor Market Information, 2014). Public interest in hazards facing the environment and communities is expected to increase demand for this occupation. As the population increases, there will be more opportunities for environmental protection and compliance (Kentucky Labor Market Information, 2014). Environmental consulting in the private sector should provide the fastest job growth in the environmental scientists and specialists, including health sector, in Kentucky (Kentucky Labor Market Information, 2014). Many consulting firms hire these professionals to help businesses and government address issues related to underground storage tanks, land disposal areas, environmental compliance, and other hazardous waste management services. In the environmental scientist field, there is a shift from investigations to preventive management, which will provide many new opportunities for additional job growth. Typical degrees for this field are environmental science or environmental health (Kentucky Labor Market Information, 2014).

Other occupations applicable to the proposed degree are occupational health and safety specialists, health and safety engineers, occupational health and safety technicians, and environmental science and protection technicians, including health. Each of these occupations is expected to experience growth through 2022 as indicated in the Bureau of Labor Statistics, U.S. Department of Labor's, Occupational Outlook Handbook (2014). The least growth expected, 2012-2022, is 7% for occupational health and safety specialists. All other occupations listed are projected to grow by 11% to 19% (Bureau of Labor Statistics, 2014).

Although occupational health and safety specialists are only expected to grow by 7% for the period of 2012-2022 in Kentucky, a survey conducted by faculty in the Department of Public Health, as discussed below, indicated that about 92% of the respondents think a specific graduate program is needed. This is further supported in review of the data regarding education level requirements for Occupational Health and Safety Specialists (Kentucky Labor Market Information, 2014). The Kentucky Labor Market Information (2014) indicates the following for Occupational Health and Safety Specialists: "Despite slower than average employment growth, job opportunities for individuals with advanced degrees are expected to be good. Further, it was noted that Candidates with certification might enjoy more job opportunities. In addition, a large number of currently practicing occupational health and safety specialists are expected to retire over the coming decade, creating opportunities for new specialists".

Environmental compliance inspectors are the last related occupation to report. This occupation is expected to grow slower than average (5%) from 2012 to 2022 at the national scale (U.S. Bureau of Labor Statistics, 2014). However, similar to the occupational health and safety specialists, the education level most reported is a Bachelor's Degree, 87.7% of respondents. Only 8.8% reported to have a post post-baccalaureate certificate, while only 1.75% reported having a Master's degree (U.S. Bureau of Labor Statistic, 2014). This information shows that growth can be expected to occur in Master's programs related. Especially as individuals in this occupation seek to be promoted. For example, based on conversations with an alumnus, environmental compliance professionals for Kentucky earn a salary increase for each 15 hours of education beyond the baccalaureate level. This creates a unique niche for the proposed program.

Wage data is reported in Table 1 for the various occupations discussed. Information for wages in Kentucky was acquired through Kentucky Labor Market Information (2014). Wage data for the nation was available through the Bureau of Labor Statistics (2014). Wages for occupations in Kentucky, related to the proposed degree, ranged from $43,747, minimum mean, to $96,268, maximum for experienced. National wage data showed the minimum median to be $41,240 and the maximum top 10% to be $118,750.

Table 1. Average and median wage data for the occupations related to the proposed EOHS Master of Science Degree.

Occupation	Kentucky1 Mean/Experienced	Nation2 Median/Top 10%
Environmental scientists and specialists, including health	$55,933/$83,345	$63,570/$109,970
Occupational health and safety specialists	$62,044/$86,794	$66,790/$97,380
Health and safety engineers	$69,202/$96,268	$76,830/$118,750
Environmental compliance inspectors	$51,269/$76,345	N/A

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

Occupational health and safety technicians $43,747/$83,175 $47,440/$75,200
Environmental science and protection technicians, including health $44,427/$68,696 $41,240/$68,620
1 Kentucky Labor Market Information, 2014
2 U.S. Bureau of Labor Statistics, 2014

To further assess the need for graduate studies specific to Environmental and Occupational Health Science we conducted a survey of 97 professionals, alumni, and students in the spring semester of 2013. The sample was made up of 33.3% students and 66.7% professionals in the environmental and occupational health science fields in Kentucky, centered in South Central Kentucky. A response rate of 38.1% (37) was attained. Survey results indicated that the major fields of study that impact respondents' current job or position are environmental management, occupational safety and health, industrial hygiene, and statistics. Respondents reported major responsibilities to be preparation of technical reports (81.1%) and data analysis (73.0%). Additional responsibilities reported were evaluation of procedures and programs (62.2%), project management (62.2%), occupational safety and health management (56.8%), environmental monitoring (56.8%), policy and regulatory analysis (54.1%), environmental compliance (54.1%), and environmental management (51.4%). Respondents were asked, "What graduate degree would be best suited for your professional advancement?" Responses (35) to this survey question indicated a Master of Science in Environmental and Occupational Health Science (22.9%), Master of Science in Environmental Health and Safety (20.0%), Master of Science in Occupational Safety and Health (17.1%), a Master of Science in Environmental Management (17.1%) or a Master of Science in Environmental Health Science (14.3%). In review of the 35 responses to this question, only 8.6% indicated a Master of Public Health in Environmental Health. Two respondents listed other degrees; these were Master of Science in Safety and Health Management, and Master of Science in Industrial Hygiene. Due to the varied nature of job requirements reported, respondents selected degree titles that included the words environmental and/or occupational. Finally, when respondents were asked, "In your opinion, is a graduate degree specific to your professional field needed in the Western Kentucky region?" a total of 33 (91.7%) respondents selected "Yes" and three (8.3%) respondents selected "No", with one respondent skipping the question.
Enrollment projections for the EOHS M.S. degree, as shown in the corresponding degree table, are derived from an Environmental Health Science (EHS) alumni and professionals survey, discussed above, a survey of current EHS undergraduate students of junior and senior standing, enrollments in the MPH Environmental Health concentration and EHS graduate certificate, as well as market projections for employment of environmental and occupational health science professionals. The projections include 8 new students in Year 1 (8 total students), 8 new students in Year 2 (16 total students), 9 new students in Year 3 (17 total students), 10 new students in Year 4 (19 total students), and 12 new students in Year 5 (22 total students). Students are estimated to take 9 credit hours per semester (18 credit hours per year for 2 years) at the resident graduate tuition rate with a 3% tuition escalator per year.

A survey of current EHS undergraduate students of junior and senior standing (n=25), with 10 respondents, indicated that 80% of respondents (n=8) plan to attend graduate or professional school. When asked, "Would you enroll in the proposed M.S. in Environmental and Occupational Health Science at Western Kentucky University?" a total of 5 (50%) respondents selected "Yes" and 4 (40%) indicated they would consider enrolling in the program. Therefore, of all respondents, 90% indicated they would enroll in the program or consider enrolling in the proposed EOHS M.S. degree.

Current enrollment in the Environmental Health Concentration of the MPH program is 19 students. There are two additional students enrolled in the graduate Environmental Health and Safety Certificate program that would matriculate into the proposed program. The projected enrollments in the proposed EOHS program are in line with current enrollments in the related Environmental Health concentration of the MPH program. Additionally, we have developed a list of students outside of the current programs that have inquired about a graduate degree specific to Environmental and Occupational Health Science.

Worksite Health Promotion (WHP) is a field that has seen phenomenal growth in the past few decades. Results from the Towers Watson/National Business Group on Health 2011/2012 "Staying@Work" study reveals that essentially all respondents (U.S. and Canada) expect their organization's support of health and productivity programs to increase over the next two years. The high cost of health care, loss of productivity due to occupational related illness and injury, and chronic diseases, resulting from poor health habits of employees are forcing American businesses to consider prevention

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

strategies over the more traditional medical, or treatment model, to stay competitive in a global marketplace. According to Buck Consultant's 2010 Global Wellness Survey, health promotion programs are most prevalent in North America, where they are offered by 74 percent of surveyed employers, but health promotion programs are increasing throughout the world, with 41 to 49 percent of surveyed employers providing programs to their employees in all regions outside North America. The WHP workforce currently is an assortment of individuals with varying backgrounds and training. While many individuals chose this field, others were assigned to manage their health promotion programs due to the convenience of their positions within their company, such as human resource professionals or occupational nurses, while having this role added to their list of responsibilities. Although many of these individuals may have highly desirable job skills, the challenge is to find individuals who have been formally trained to plan, implement, and evaluate programs, practices and policies related to successful worksite health promotion management. According to the U.S. Bureau of Labor Statistics (2010), the 2010-2020 job outlook for health educators in the U.S. workforce is a 37 percent growth rate, which is much faster than the average for all occupations. The report notes that this growth is driven by efforts to reduce healthcare costs by teaching people about healthy habits and behaviors. Given the recent requirements mandated by the 2010 Affordable Care Act, the time has come to require that those entering the WHP field are formally prepared with the knowledge and skills needed to be successful in this dynamic environment.

To assess the need for student demand a survey was conducted October 2012 throughout the state of Kentucky on The Partnership for a Fit Kentucky's website to review the interest in graduate curriculum in worksite health promotion. The skills of program planning, evaluation, health communication, policy, financial strategies and marketing were addressed. There was a 51% return rate with 70.7% of those who participated answered that they would be interested in graduate curriculum in the worksite health promotion field.

Based upon the market, which includes past experience with students not desiring to pursue the MPH with a concentration in Environmental Health and the results of the survey, stating the need for graduate studies in Environmental and Occupational Health Science, the new graduate degree program is proposed. The proposed program will be an extension of the existing Environmental Health Science undergraduate program, the Environmental Health and Safety graduate certificate, and the Advanced Worksite Health Promotion Certificate. Additionally, all courses for the proposed program are existing courses.

3. Academic Disciplinary Needs:

The Environmental and Occupational Health Science program will focus on the study of the protection of human health from hazards found in the built, occupational and natural environments, and the promotion health in occupational settings. The proposed program would be the first and only Master of Science in Environmental and Occupational Health Science program offered in the WKU service area and in Kentucky. A new graduate program is needed due to regulatory and functional discipline changes that require modifications in the academic discipline. According to NIOSH (http://www.cdc.gov/niosh/twh/):

Today, emerging evidence recognizes that both work-related factors and health factors beyond the workplace jointly contribute to many safety and health problems that confront today's workers and their families. Traditionally, workplace safety and health programs have been compartmentalized. Health protection programs have focused squarely on safety, reducing worker exposures to risk factors arising in the work environment itself. And most workplace health promotion programs have focused exclusively on lifestyle factors off-the-job that place workers at risk. A growing body of science supports the effectiveness of combining these efforts through workplace interventions that integrate health protection and health promotion programs.

NIOSH recognizes that integration of health protection and promotion is on the horizon in the EOHS discipline. As such, the new degree embodies the academic discipline that encompasses this new integration. Likewise, a trend indicated in our surveys, is the need for EOHS professionals to have academic preparation in the area of environmental compliance. The new program is in response to the changing academic discipline needs or our students.

a. If the proposed program is an advanced practice doctorate, explain the new practice or licensure requirements in the profession and/or requirements by specialized accrediting agencies that necessitate a new doctoral program.

(Should not be blank)

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

4. Similar programs:

a. Are there similar programs in other Southern Regional Education Board (SREB) states and in the nation?

YES

Please identify similar programs in other SREB states and in the nation.

The Environmental and Occupational Health Science program will focus on the study of the protection of human health from hazards found in the built, occupational, and natural environments, and the promotion of health in occupational settings. The proposed program would be the first and only Master of Science in Environmental and Occupational Health Science program offered in the WKU service area and in Kentucky.

A Master of Public Health degree with a concentration in Environmental Health Science is offered at Eastern Kentucky University. Eastern Kentucky University does not have a stand-alone Environmental Health Science graduate program. This program is similar to the current Master of Public Health, Environmental Health concentration within the WKU Department of Public Health. A Master of Science in Occupational Safety and Health is offered at Murray State University. This program has a focus on occupational safety. However, these degrees do not encompass environmental and occupational health protection and promotion, and environmental compliance and protection. As previously stated, the proposed program would be the first and only Master of Science in Environmental and Occupational Health Science program offered in the WKU service area and in Kentucky. Currently, the nearest accredited program is located at East Tennessee State University. Yet it contrasts in that it is a Master of Science degree in Environmental Health. The proposed program differs in that the focus is on environmental and occupational health protection and promotion. Other programs accredited by the National Environmental Health Science and Protection Accreditation Council include California State University, East Carolina University, Mississippi Valley State University, Old Dominion University, University of Findlay, and University of Illinois, Springfield.

Similar Master of Science programs in Environmental and Occupational Health Science or a closely related field do exist in SREB states and the nation. Examples of similar programs are listed in the table below. The program at WKU is unique in that it provides students with a degree that includes environmental and occupational health protection and promotion, as well as aspects of environmental compliance and protection. Comparable programs in SREB states include East Carolina University, University of Alabama, Birmingham, University of Miami, University of Oklahoma and Texas A&M University.

University State Degree
California State University Northridge CA Master of Science in Environmental and Occupational Health Sciences
East Carolina University NC Master of Science in Environmental Health
Hunter College NY Master of Science in Environmental and Occupational health Sciences
Johns Hopkins University MD Master of Science in Environmental Health
Texas A&M University TX Master of Science in Public Health, Occupational Safety and Health or Environmental Health
Tulane University LA Master of Science in Public Health, Industrial Hygiene
University of Alabama, Birmingham AL Master of Science in Public Health, Industrial Hygiene or Environmental Health Toxicology
University of California, Berkeley CA Master of Science in Environmental Health Sciences
University of California, Los Angeles CA Master of Science in Environmental Health Sciences
University of Illinois at Chicago IL Master of Science in Environmental and Occupational Health Science
University of Iowa IA Master of Science in Occupational and Environmental Health
University of Miami FL Master of Science in Environmental Health and Safety
University of Michigan MI Master of Science in Environmental Health Sciences
University of Oklahoma OK Master of Science in Industrial Hygiene and Environmental Health Sciences
University of Pittsburgh PA Master of Science in Environmental and Occupational Health
University of Washington WA Master of Science in Occupational and Environmental Exposure Science

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

---

b. Our records indicate the following similar programs exist at public institutions in Kentucky.

---- No Programs Exist----

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

Full Proposal - Cost: Cost and Funding of the Proposed Program

1. Will this program require additional resources?

NO

2. Will this program impact existing programs and/or organizational units within your institution?

NO

3. Provide adequate documentation to demonstrate sufficient return on investment to the state to offset new costs and justify approval for the proposed program.

Courses offered in the proposed EOHS M.S. degree are currently offered as part of the MPH Environmental Health concentration, Environmental Health and Safety graduate certificate, and Worksite Health Promotion certificate. The proposed degree is part of the Public Health department. Faculty dedicated to the EOHS program are included in the existing department budget and will be split 50/50 between the proposed EOHS degree program and other programs. Four existing faculty will be part of the EOHS program on 50%. The table below demonstrates sufficient return on investment. New costs will not occur until tuition dollars can support the projected needs.

A. Funding Sources, by year of program	1st year	2nd year	3rd year	4th year	5th year
	0	0	0	0	0
Total Resources Available from Federal Sources					
New :	0	14832	15277	15735	16207
Existing :	14400	0	0	0	0
Narrative Explanation/Justification :	Each summer funding is available for graduate research assistants to conduct hazardous material commodity flow studies in Kentucky communities. This funding has been acquired the past three years. Three hazardous materials commodity flow studies are slated for Summer 2014 and funding requests are being developed with Kentucky Emergency Management for subsequent summers. This funding is acquired through the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.				
Total Resources Available from Other Non-State Sources					
New :	0	0	25500	0	0
Existing :	12376	24751	0	25500	25500
Narrative Explanation/Justification :	A grant with the Center for Produce Safety will provide a stipend and tuition for a graduate research assistant in the Fall 2014, Spring 2015, and Fall 2015. This grant includes salary for the graduate assistant in Summer. It is anticipated that additional funding will be attained through grants to support at least one graduate research assistant for the 3rd through 5th years.				
State Resources					
New :	0	0	0	0	0
Existing :	0	0	0	0	0
Narrative Explanation/Justification :	N/A				
Internal					
Allocation :	0	0	0	0	0

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

A. Funding Sources, by year of program	1st year	2nd year	3rd year	4th year	5th year
Reallocation :	185738	193167	200894	208930	217287
Narrative Explanation/Justification :	Classes for the proposed Environmental and Occupational Health Science, Master of Science degree are offered as part of graduate certificate programs and the MPH and Environmental Health concentration. The existing internal includes 50% salary/fringe for four current faculty that teach EOHS content, with a 4% escalator each year for personnel.				
Student Tuition					
New :	72672	74856	86742	99270	122700
Existing :	0	74856	77104	89343	102250
Narrative Explanation/Justification :	Tuition is based on projected enrollment derived from an EHS alumni and professionals survey, a survey of current EHS undergraduate students of junior and senior standing, enrollments in the MPH Environmental Health concentration and EHS graduate certificate, as well as market projections for employment of environmental and occupational health science professionals. The projections include 8 new students in Year 1 (8 total students), 8 new students in Year 2 (16 total students), 9 new students in Year 3 (17 total students), 10 new students in Year 4 (19 total students), and 12 new students in Year 5 (22 total students). Students are estimated to take 9 credit hours per semester (18 credit hours per year for 2 years) at the resident graduate tuition rate with a 3% tuition escalator per year.				
Total					
New :	$72,672	$89,688	$127,519	$115,005	$138,907
Existing :	$212,514	$292,774	$277,998	$323,773	$345,037
Total Funding Sources :	$285,186	$382,462	$405,517	$438,778	$483,944

B. Breakdown of Budget Expenses/Requirements	1st year	2nd year	3rd year	4th year	5th year
Staff: Executive, administrative, and managerial					
New :	0	0	0	0	0
Existing :	0	0	0	0	0
Other Professional					
New :	0	0	0	0	0
Existing :	0	0	0	0	0
Faculty					
New :	0	0	0	0	0
Existing :	185738	193167	200894	208930	217287
Graduate Assistants (if master's or doctorate)					
New :	37168	0	20140	0	10640
Existing :	0	38283	39432	61359	63199

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

B. Breakdown of Budget Expenses/Requirements	1st year	2nd year	3rd year	4th year	5th year
Student Employees					
New :	6000	0	0	0	0
Existing :	0	6000	6000	6000	6000
Narrative Explanation/Justification :	The student employee will work with faculty and staff to assist with administrative tasks. This may include data entry, document management, and filing of electronic documents. Other job responsibilities will include collation of marketing materials, maintenance of a website, and general office duties.				
Equipment and Instructional Materials					
New :	0	5000	7500	10000	20000
Existing :	5000	5000	5000	7500	10000
Narrative Explanation/Justification :	Laboratory and field equipment and supplies are needed to support the EOHS M.S. degree program. Several courses will require use the Environmental Health Laboratory and scientific equipment to conduct environmental and occupational measurements. Expendable laboratory supplies will be needed each year. Finally, equipment calibrations must be maintained, as well as repair and purchase of equipment. The existing budget will be supplemented with new funds in each year of the program.				
Library					
New :	0	0	0	0	0
Existing :	5250	5250	5250	5250	5250
Narrative Explanation/Justification :	The library maintains a collection to support the Public Health Department, which includes materials for the MPH and undergraduate degree in Environmental Health Science. Acquisitions for the Environmental and Occupational Health Science program amount to $5250 per year, and will support the major and minor sufficiently.				
Contractual Services					
New :	0	0	0	0	0
Existing :	0	0	0	0	0
Narrative Explanation/Justification :	N/A				
Academic and/or Student Services					
New :	0	0	0	0	0
Existing :	0	0	0	0	0
Narrative Explanation/Justification :	N/A				
Other Support Services					
New :	0	0	0	0	0
Existing :	0	0	0	0	0
Narrative Explanation/Justification :	N/A				

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

B. Breakdown of Budget Expenses/Requirements	1st year	2nd year	3rd year	4th year	5th year
Faculty Development					
New :	0	2500	500	500	500
Existing :	4000	4000	6500	7000	7500
Narrative Explanation/Justification :	The Public Health Department and College of Health and Human Services support professional development of faculty. This support will continue and generally amounts to $1,000 per year. The proposed program will support an addition of $2500 in the 2nd Year and $500 each year through the 5th year, to total $8,000, new and existing. New funds are needed to support faculty for conferences, trainings, and other faculty development.				
Assessment					
New :	0	0	0	0	0
Existing :	0	0	0	0	0
Narrative Explanation/Justification :	N/A				
Student Space and Equipment (if doctorate)					
New :	0	0	0	0	0
Existing :	0	0	0	0	0
Narrative Explanation/Justification :					
Faculty Space and Equipment (if doctorate)					
New :	0	0	0	0	0
Existing :	0	0	0	0	0
Narrative Explanation/Justification :					
Other					
New :	0	0	0	0	0
Existing :	0	0	0	0	0
Narrative Explanation/Justification :	N/A				
Total					
New :	$43,168	$7,500	$28,140	$10,500	$31,140
Existing :	$199,988	$251,700	$263,076	$296,039	$309,236
Total Budget Expenses/Requirements :	$243,156	$259,200	$291,216	$306,539	$340,376
Grand Total					
Total Net Cost :	$42,030	$123,262	$114,301	$132,239	$143,568

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

Full-Proposal - Assess: Program Review and Assessment

1. For each assessment method, please provide direct indicators of achievement of program-level student learning outcomes and frequency of data collection:

a. Which components will be evaluated?

- External awards or other recognition of the students, faculty and/or program
- Average actual time and credit to degree
- Internship supervisor satisfaction with interns as measured by an internship survey
- Employer satisfaction with graduates as measured by surveys and/or alumni job satisfaction surveys
- Job placement or graduate school admission

b. When will the components be evaluated?

- External funding, awards or other recognition of the students, faculty and/or program – evaluated annually
- Average actual time and credit to degree – evaluated annually
- Internship supervisor satisfaction with interns as measured by an internship survey – evaluated annually
- Employer satisfaction with graduates as measured by surveys and/or alumni job satisfaction surveys – evaluated triennially
- Job placement or graduate school admission – evaluated triennially

c. When will the data be collected?

- External funding, awards or other recognition of the students, faculty and/or program – data collected each August, December, and May
- Average actual time and credit to degree – data collected each August, December, and May
- Internship supervisor satisfaction with interns as measured by an internship survey – data collected each August, December, and May
- Employer satisfaction with graduates as measured by surveys and/or alumni job satisfaction surveys – data collected in the fall and spring semesters prior to the triennial evaluation
- Job placement or graduate school admission – data collected in the fall and spring semesters prior to the triennial evaluation

d. How will the data be collected?

- External funding, awards or other recognition of the students, faculty and/or program – data will be collected from the WKU Digital Measures as self-reported by faculty and from the WKU Department of Public Health RedCap system as self-reported by faculty and students
- Average actual time and credit to degree – data will be collected in the WKU TopNet system
- Internship supervisor satisfaction with interns as measured by an internship survey – surveys will be a requirement of each internship in order to receive a grade of pass, data for each survey will be entered into the WKU Department of Public Health RedCap system that will store internship portfolio data. Also, surveys will be administered through WKU's Qualtrics system and collected accordingly.
- Employer satisfaction with graduates as measured by surveys and/or alumni job satisfaction surveys – Surveys will be administered with the WKU Qualtrics system and will be data collected accordingly
- Job placement or graduate school admission – Surveys will be conducted with graduates of the program with the WKU Qualtrics system. Data for graduates that do not respond will be assessed through online media, such as LinkedIn.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

e. What will be the benchmarks and/or targets to be achieved?

- External awards or other recognition of the students, faculty and/or program
  - 80% of faculty will maintain externally grant funded projects each year
  - External grant funding will exceed $100K per year for program faculty and students.
  - 80% of faculty will publish in peer reviewed journals, in professional trade journals, and/or produce grant funded technical reports and research results
  - 80% of faculty will engage in EOHS public service components
  - 80% of the faculty and 40% of the students will present research or public service outcomes at local, state, national, and/or international venues
- Average actual time and credit to degree
  - 80% of students will complete the M.S. in EOHS degree in 36 to 42 hours of credit.
  - 80% of students will complete the M.S. in EOHS degree in 2 years, to include a maximum of two Fall and two Spring semesters
- Internship supervisor satisfaction with interns as measured by an internship survey
  - 80% of students will receive an above average score of 4.0 on a 5.0 scale or more as an average of all survey questions
  - 80% of students will pass the internship portfolio defense on the first attempt
- Employer satisfaction with graduates as measured by surveys and/or alumni job satisfaction surveys
  - 70% of employers/alumni will have an average job satisfaction rating of 4.0 or higher on a 5.0 scale
  - 70% of alumni will continue in a career related to the EOHS field
- Job placement or graduate school admission
  - 80% of graduates that seek to enter the EOHS workforce will obtain a job placement within a year of graduation
  - 60% of graduates that seek to enter graduate and/or doctoral program in an EOHS related field will gain admission

f. What individuals or groups will be responsible for data collection?

- The program director will be responsible for data collection and developing a faculty program review committee with a student representative to review the data analysis results.
- A graduate assistant will be assigned to the program director to ensure data collection timeframes met.

g. How will the data and findings be shared with faculty?

- Assessment results will be shared with all EOHS faculty through a report that will be emailed.
- Details of the assessment report will be presented and discussed at the annual EOHS faculty workgroup meeting.

h. How will the data be used for making programmatic improvements?

- Results of the data analysis will be used to make programmatic changes if benchmarks are not attained.
- The program director, in consultation with the program review committee, will recommend programmatic changes to improve the student and faculty outcomes.
- All EOHS faculty will vote on recommendations and a majority vote reached to promote a recommendation in to an action.
- The program director will be responsible for implementation of all passed actions.

Western Kentucky University
MS - MASTER OF SCIENCE
51.2202-Environmental Health.
Submission Date: 10/21/2014 10:56

2. What are the measures of teaching effectiveness?

The WKU Faculty Handbook presents measures and evidence that can be used to assess teaching effectiveness that includes:
o An evaluation of both the systematic organization of appropriate materials for presentation and communication to students of course objectives, plan of study, and means of student performance evaluation.
o An evaluation of the effectiveness of presentation by lecture, discussion, assignment and recitation, demonstration, laboratory exercise, practical experience, consultation, field trips, computer-assisted instruction, reading lists, audiovisual materials, simulations, and games.
o An evaluation of assessment procedures such as tests, grading practices, and clinical performance.
o An evaluation of professional responsibilities such as in meeting classes; holding office hours; providing academic advising to students; returning materials in a timely fashion; making clinical assignments; supervising students; and treating students in a fair, impartial and respectful manner.
o An evaluation of the effectiveness with which students are stimulated to develop critical and/or creative abilities and intellectual curiosity by such means as independent study or thesis projects.
o An evaluation of the knowledge of recent discoveries and literature in the field; the use of the latest scientific/technological innovations; participation in professional activities, such as training programs, technical seminars and self-study programs.
o Student feedback from course appraisals; student performance on departmental exams; comments from peers, students and alumni.
o An evaluation of cooperation in developing, scheduling, and teaching general undergraduate and graduate courses on and off campus.
o An evaluation of the development of textbooks, workbooks, manuals, tapes, slides, online materials, other print and non-print learning resources developed primarily for classroom use.
o An evaluation of the success of students on uniform examinations, in acceptance to graduate and professional programs, in winning awards, in job placement, or in other highly significant achievements.
o Documentation of direct assistance in helping students find appropriate employment.
o Development or use of web-based courses, study abroad and other international academic programs.

3. What efforts to improve teaching effectiveness will be pursued based on these measures?

a. According to the WKU Faculty Handbook a systematic review process is in place for faculty members.
b. Procedures detailed in the WKU Faculty Handbook will be followed to address improvements in teaching effectiveness.
c. At a minimum, faculty that need improvements in teaching effectiveness will be mentored by the Department Head, Program Director, and/or a senior faculty member.

4. What are the plans to evaluate students' post-graduate success?

a. Surveys will be conducted with graduates, as outlined in 1 above.
b. Social media, such as LinkedIn, will be used to monitor graduate success in the EOHS field.
c. An EOHS Advisory Board will include graduates that can be surveyed for success in the field.

Appendix A
Faculty Roster Form

Qualifications of Full-Time (F) and Part-Time Faculty (P)

Name of Institution: **Western Kentucky University**

Name of Primary Department: **Department of Public Health**

Academic Program: **Master of Science in Environmental and Occupational Health Science**

Academic Term(s) Included: 2013-2014, with additional courses identified as part of plan

Date Form Completed: 8/6/14

1	2	3	4
NAME (F, P)	**COURSES TAUGHT Including term, Course Number & Title, Credit Hours (D, UN, UT, G)**	**ACADEMIC DEGREES & COURSEWORK** **Relevant to Courses Taught, Including Institution & Major List specific graduate coursework if needed**	**OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught**
Farrell, Colin (F)	Fall 2013 PH 520: BIOSTATISTICS, 3 hrs. (G) Spring 2014 PH 520: BIOSTATISTICS, 3 hrs. (G)	PHD (Medical Sociology), U of Alabama at Birmingham, 2010 MPH (Intl Hlth Global Studies – Epi), U of Alabama at Birmingham, 2010 MA (Sociology), U of Alabama at Birmingham, 2006 **18 hours of graduate work:** U of Alabama at Birmingham: BST 623: General Linear Models, 3 BST 626: Data Management with SAS, 3 BST 661: Structural Equation Modeling, 3 SOC 703: Advanced Statistics, 3 SOC 701: Data Mangmt/Analysis, 3 SOC 711: Qualitative Methods, 3	Graduate Faculty Appointment

		SOC 705: Method Soc Research, 3	
Gardner, Marilyn M. (F)	Fall 2013 PH 587: HEALTH BEHAVIOR, 3 hrs. (G)	PHD (Health Ed Promotion), U of Alabama, 1999 MS (Wellness), U of Mississippi, 1995	Graduate Faculty Appointment
Golla, Vijay (F)	Fall 2013 EHS 580: SOLID AND HAZARDOUS WASTES, 3 hrs. (G) PH 584: PRIN OF ENVIRONMENTAL HEALTH, 3 hrs. (G) Spring (plan) EHS 572: ENVIRONMENTAL AND OCCUPATIONAL EPIDEMIOLOGY, 3 hrs. (G) PH 501: RESEARCH METHODS, 3 hr. (g)	PHD (Occupational & Environmental Health (Industrial Hygiene)), U of Iowa, 2007 MPH (Public Health), Western Kentucky University, 2003	Graduate Faculty Appointment
Iyiegbuniwe, Emmanuel (F)	Fall 2013 PH 571: AIR QUALITY MANAGEMENT, 3 hrs. (G) Spring 2014 PH 584: PRIN OF ENVIRONMENTAL HEALTH, 3 hrs. (G) PH 595: PUBLIC HEALTH MGT OF DISASTERS, 3, (G)	PHD (Public Health), U of Illinois at Chicago, 1997 MS (Public Health), U of Illinois at Chicago, 1994	Graduate Faculty Appointment
Macy, Gretchen Marie Brown (F)	Fall 2013 PH 587: HEALTH BEHAVIOR, 3 hrs. (G) Spring 2014 PH 587: HEALTH BEHAVIOR, 3 hrs. (G) PH 599: THESIS RESEARCH/WRITING, 6 hr.	EDD (Kinesiology and Health Promotion), U of Kentucky, 2012 MPH (Public Health, Public Health Education), Western Kentucky University, 2011	Graduate Faculty Appointment

	(G)		
Shearer, Darlene Louise (F)	Fall 2013 PH 575: HEALTH ED/PROGRAM PLANNING, 3 hrs. (G) Spring 2014 PH 575: HEALTH ED/PROGRAM PLANNING, 3 hrs. (G)	DRPH (Public Health, Maternal Child Health), U of Alabama at Birmingham, 1999	Graduate Faculty Appointment
Taylor, Ritchie Don (F)	Fall (plan) PH 501: RESEACH METHODS, 3 hrs. (G) PH 560: ENVIRONMENTAL MANAGEMENT AND RISK ASSESSMENT, 3 hrs. (G) Spring 2014 PH 510: WATERSHED MGMT AND SCIENCE, 3 hrs. (G) PH 577: ENVIRONMENTAL TOXICOLOGY, 3 hrs. (G)	PHD (Environmental Science), U of North Texas, 2002	Graduate Faculty Appointment
Watkins, Cecilia Michelle (F)	Spring 2014 PH 502: HEALTH PROMOTION/WORKPLACE, 3 hrs. (G)	PHD (Human Ecology, Community Health), U of Tennessee, Knoxville, 2000 MS (Health), Western Kentucky University, 1993	Graduate Faculty Appointment
Zhu, Honghong (F)	Fall 2013 PH 582: EPIDEMIOLOGY, 3 hrs. (G) Spring 2014 PH 582: EPIDEMIOLOGY, 3 hrs. (G)	PHD (Epidemiology), Johns Hopkins University, 2007	Graduate Faculty Appointment
Bruce, Rebecca Lynn (P)	Fall 2013 PH 546: GRADUATE INTERNSHIP, 3 hrs. (G) Spring 2014 PH 546: GRADUATE	MS (Health), Western Kentucky University, 1989	Graduate Faculty Appointment

	INTERNSHIP, 3 hrs. (G)		
Coe, Emily Susan (P)	Spring 2014 PH 582: EPIDEMIOLOGY, 3 hrs. (G)	PHD (Health Education/ Promotion), U of Alabama at Birmingham, 2002	Graduate Faculty Appointment
Ibrahimou, Boubakari (P)	Fall 2013 PH 520: BIOSTATISTICS, 3 hrs. (G)	PHD (Mathematics), U of South Florida, 2007 **18 hours of graduate work:** U of South Florida: HSC 6055: Survival Analysis, 3 PHC 7053: Generalized Linear Models, 3 PHC 7058: Biostatistical Inference II, 3 PHC 7059: Advance Survival Analysis, 3 PHC 7056: Longitudinal Data Analysis, 3 PHC 6061: Biostatistical Collaborative II, 3 MAT 5932: Adv ODE & Non-linear Theory, 9 MAA 5316: Ordinary Diff Equations, 3 STA 6447: Probability Theory II, 3 MAA 6507: Functional Analysis, 3	Graduate Faculty Appointment

F, P: Full-time or Part-time: D, UN, UT, G: Developmental, Undergraduate Nontransferable, Undergraduate Transferable, Graduate

Western Kentucky University Libraries
Journals Relevant to the Environmental and Occupational Health Science Program

Journal Title	ISSN	Publisher/Vendor	Years	URL
American Water Works Association Journal	0003-150X	American Water Works Association	2008-	http://libsrv.wku.edu:2048/login?url=http://search.ebscohost.com/direct.asp?db=aci&jid=%22KNS%22&scope=site
Applied and Environmental Microbiology	0099-2240	ASM	1953-	http://libsrv.wku.edu:2048/login?url=http://aem.asm.org/content/current
Archives of Environmental and Occupational Health	1933-8244	Taylor and Francis	1997-	http://libsrv.wku.edu:2048/login?url=http://www.tandfonline.com/openurl?genre=journal&issn=1933-8244
Archives of Environmental Contamination and Toxicology	0090-4341	Springer	1997-	http://libsrv.wku.edu:2048/login?url=http://rd.springer.com/openurl?genre=journal&issn=0090-4341
Archives of Toxicology	0340-5761	Springer	1997-	http://libsrv.wku.edu:2048/login?url=http://rd.springer.com/openurl?genre=journal&issn=0340-5761
Bulletin of Environmental Contamination and Toxicology	0007-4861	Springer	1997-	http://libsrv.wku.edu:2048/login?url=http://rd.springer.com/openurl?genre=journal&issn=0007-4861
Environment, Development, and Sustainability	1387-585X	Springer	1999-	http://www.springer.com/environment/sustainable+development/journal/10668
Environmental and Ecological Statistics	1573-3009	Springer	1997-	http://link.springer.com/journal/10651
Environmental Geochemistry and Health	0269-4042	Springer	1997-	http://libsrv.wku.edu:2048/login?url=http://rd.springer.com/openurl?genre=journal&issn=0269-4042
Environmental Health Perspectives	0091-6765	DOAJ	1972-	http://ehp.niehs.nih.gov/
Environmental Health: A Global Access Science Source	1476-069X	DOAJ	2002-	http://www.ehjournal.net/
Environmental Science and Pollution Research	1614-7499	Springer	1997-	http://link.springer.com/journal/11356
Environmental Science and Technology	1520-5851	American Chemical Society	1996-	http://pubs.acs.org/journal/esthag
Industrial Health	0019-8366	DOAJ	2000-	http://www.jstage.jst.go.jp/browse/indhealth/_vols
International Archives of Occupational and Environmental Health	0340-0131	Springer	1997-	http://libsrv.wku.edu:2048/login?url=http://rd.springer.com/openurl?genre=journal&issn=0340-0131
International Archives of Occupational and Industrial Health	0340-0131	Springer	1997-	http://libsrv.wku.edu:2048/login?url=http://rd.springer.com/openurl?genre=journal&issn=0340-0131
International Journal of	1232-	Springer	3/201	http://libsrv.wku.edu:2048/login?url=htt

Occupational Medicine and Environmental Health	1087		1-	p://rd.springer.com/openurl?genre=journal&issn=1232-1087
Journal of Agricultural Safety and Health	1074-7583	ASABE	2/1995-	http://libsrv.wku.edu:2048/login?url=http://elibrary.asabe.org/toc_volume.asp?volume=18&conf=j2012
Journal of Agromedicine	1059-924x	Taylor and Francis	1997-	http://libsrv.wku.edu:2048/login?url=http://www.tandfonline.com/openurl?genre=journal&issn=1059-924X
Journal of Environmental Health	0022-0892	EBSCO Academic Search Complete	7/1993-	http://libsrv.wku.edu:2048/login?url=http://search.ebscohost.com/direct.asp?db=a9h&jid=EVH&scope=site
Journal of Environmental Quality	0047-2425	American Society of Agronomy	2001-	http://libsrv.wku.edu:2048/login?url=https://www.agronomy.org/publications/jeq
Journal of Medical Entomology	0022-2585	BioOne	2000-	http://libsrv.wku.edu:2048/login?url=http://www.bioone.org/perlserv/?request=get-archive&issn=0022-2585
Journal of Occupational and Environmental Hygiene	1545-9624	Taylor and Francis	1997-	http://libsrv.wku.edu:2048/login?url=http://www.tandfonline.com/openurl?genre=journal&issn=1545-9624
Journal of Occupational and Environmental Medicine	1076-2752	Lippincott Williams & Wilkins/Ovid	on order	
Journal of Occupational Health	1341-9145	Japan Society for Occupational Health/J-STAGE	2002-	http://www.jstage.jst.go.jp/browse/joh
Journal of Occupational Medicine and Toxicology	1745-6673	DOAJ	2006-	http://libsrv.wku.edu:2048/login?url=http://www.occup-med.com
Journal of Safety Research	0022-4375	ScienceDirect	1999-	http://libsrv.wku.edu:2048/login?url=http://www.sciencedirect.com/science/journal/00224375
Journal of the Air and Waste Management Association	1096-2247	Taylor and Francis	1997-	http://libsrv.wku.edu:2048/login?url=http://www.tandfonline.com/openurl?genre=journal&issn=1096-2247
Journal of the American Mosquito Control Association	8756-971X	BioOne 2	2005-	http://libsrv.wku.edu:2048/login?url=http://www.bioone.org/perlserv/?request=get-archive&issn=8756-971X
Journal of Water and Health	1477-8920	IWA	2009-	http://libsrv.wku.edu:2048/login?url=http://www.iwaponline.com/jwh/toc.htm
Toxicology and Environmental health Sciences	2233-7784	Springer	2009-	http://link.springer.com/journal/13530
Water, Air, and Soil Pollution	1573-2932	Springer	1997-	http://link.springer.com/journal/11270
Workplace Health and Safety (formerly: AAOHN Journal)	**2165-0799**	AAOHN/Healio	2006-	http://libsrv.wku.edu:2048/login?url=http://www.healio.com/journals/AAOHN

Western Kentucky University

Courses for the Environmental and Occupational Health Science Program

Core Courses				
Prefix & Number	Course Title	Course Description	Credit Hours	New
PH 520	Biostatistics for Public Health	Application of statistical theory and principles in public health and related disciplines. Emphasis is placed on developing and testing hypotheses, utilizing appropriate statistical methodology, and the use of appropriate technology.	3.0	N
PH 577	Environmental Toxicology	Toxicological principles and environmental risk assessment with emphasis on routes of exposure, biokinetics, and response to chemical stressors.	3.0	N
PH 582	Epidemiology: Practice and Theory	Applications of epidemiological principles to representative occurrences of communicable and noncommunicable diseases. Emphasizes problem solving and interpretations.	3.0	N
PH 584	Principles of Environmental Health	A study of the traditional, emerging and controversial issues associated with environmental health. Biological, chemical and physical threats to human health are included.	3.0	N
PH 501	Research Methods	Methods, materials, techniques, and planning of research studies used and conducted by the profession.	3.0	N
EHS 572	Environmental and Occupational Epidemiology	The course will introduce student to the research approaches for the epidemiologic study of the environmental and workplace hazards. This course involves the study and reasoning of environmental and occupational epidemiologic study designs, basic and novel methods of characterizing exposures, and techniques for designing epidemiologic studies and implementing methods to improve the evaluation of research in these fields.	3.0	N

Elective Courses				
Prefix & Number	Course Title	Course Description	Credit Hours	New
PH 560	Environmental Management and Risk Assessment	Application of environmental management systems, methods, and tools to mitigate threats to environmental and human health. Guide students to understand their role as an environmental health professional working with the public and private sectors in controlling ad- verse environmental conditions through the competencies of assessment, management, and communication. Application of risk assessment as it relates to human and environmental health.	3.0	N
PH 571	Air Quality Management	Examines the origins, dispersion, control and effects of air pollution; indoor air pollution; and the history of air quality control management. Provides a balanced account of air quality control regulations including the provisions and implications of the Federal Air Quality regulations, standards, setting, policy implementation and technical and management aspects of air quality control.	3.0	N
PH 595	Public Health Management of Disasters	Examines the background and history of natural and technological disasters, their characteristics, human health and environmental impacts, and the management activities needed to control them. Provides an overview of federal programs to enhance state and local prevention, preparedness, and public health response to disasters.	3.0	N
EHS 580	Solid and Hazardous Wastes	Management of solid and hazardous wastes in the environment. Emphasis on regulatory compliance, control and remediation technologies, and environmental pathways.	3.0	N
PH 502	Health Promotion in the Workplace	Provides specific skills and concepts for worksite health promotion as it pertains to	3.0	N

		designing, implementing, and evaluating multifaceted health promotion programs in the workplace. Additional skills acquired in this course include financial and marketing strategies, policy development, and effective communication between employer and employee.		
PH 575	Health Education/Promotion Program Planning	An overview of the public health education program planning process. Assessment of educational needs at the community, institutional, and individual levels. Steps involved in planning, implementing, and evaluating health education programs to promote positive health practices in a variety of settings.	3.0	N
PH 587	Health Behavior	Models of positive health within the individual's life style. Includes types of illnesses and factors influencing health behavior.	3.0	N
COMM 523	Health Communication	An examination of the role communication plays in the delivery of health care. Focus is on provider-patient relationships, other providers of care, health communication campaigns, health behavior change, and within health care contexts.	3.0	N
PH 599	Thesis Research/Writing	No course description is available. Pass/Fail grading.	3.0	N
PH 546	Graduate Internship	Supervised, full-time, 12-week field experience planned with various agencies, organizations, facilities, industries, and businesses with health related missions or programs, and approved by the Department of Public Health. Off campus travel required. A maximum of six hours may be earned.	3.0	N