

Brothers, Sheila C.

From: Cramer, Aaron M.
Sent: Thursday, October 10, 2019 9:31 AM
To: Bird-Pollan, Jennifer; Brothers, Sheila C.
Cc: Ehrkamp, Patricia; Harmon, Camille; Bosch, Anna R.
Subject: NEW GC: Applied Environmental and Sustainability Studies
Attachments: GC in Applied Environmental and Sustainability.pdf

Proposed New GC: Applied Environmental and Sustainability Studies

This is a recommendation that the University Senate approve the establishment of a new GC: Applied Environmental and Sustainability Studies, in the Department of Geography within the College of Arts and Sciences.

Rationale: The proposed graduate certificate will prepare students to analyze complex environmental problems from a variety of perspectives and apply their findings to facilitate change. The interdisciplinary structure of the program encourages a liberal arts approach that combines academic knowledge in environmental issues with critical thinking, independent learning, oral and written communication, and problem solving. The proposed 12-hour curriculum, which will be offered online, consists of core courses and an elective course. Surveying indicates that there is strong demand for a graduate program in this area by currently enrolled undergraduate students in this area. The program can be completed by itself or as a part of the proposed master's program in this area (with nine of the certificate's hours applicable to the MA course requirements). Initial enrollment of 10 students growing to 30 students is anticipated.

Aaron

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NEW GRADUATE CERTIFICATE

Certificate Description. A graduate certificate shall have a clear and focused academic topic or competency as its subject, meet a clearly defined educational need of a constituency group, such as required continuing-education or accreditation for a particular profession, respond to a specific state mandate or provide a basic competency in an emerging (preferably interdisciplinary) topic. Certificates are minimally nine graduate credit hours but typically no more than 15.

Approval process. Once approved at the college level, your college will send the proposal to the appropriate Senate academic council (possibly HCCC and/or UC) for review and approval. Once approved at the academic council level, the academic council will send your proposal to the Senate Council office for additional review via a committee and then to the SC and University Senate. (The contact person listed on the form will be informed when the proposal has been sent to committee and other times as appropriate.) The last step in the process is Senate approval; upon Senate approval, students can enroll in the new certificate.

By default, graduate certificates shall be approved for a period of six (6) years. Re-approvals are also for six years.

1. GENERAL INFORMATION			
1a	Home college: <i>College of Arts and Sciences</i>		
1b	Home educational unit (department, school, college ¹): <i>Department of Geography</i>		
1c	Office of Strategic Planning and Institutional Effectiveness (OSPIE) (Please contact OSPIE (OSPIE@L.uky.edu) for help with questions in this section.)		
	Date of contact with OSPIE:		
	<input checked="" type="checkbox"/> Appended to the end of this form is a PDF of the reply from OSPIE.		
	<input checked="" type="checkbox"/> Appended to the end of this form is a letter(s) of administrative feasibility from the dean(s) of the college(s) offering the certificate.		
	CIP Code (confirmed by OSPIE): 03.0103		
1d	Proposed certificate name: <i>Graduate Certificate in Applied Environmental and Sustainability Studies</i>		
1e	Requested effective date:	<input checked="" type="checkbox"/> Fall semester following approval.	OR <input type="checkbox"/> Specific Date ² : <i>Fall 20</i>
1f	Contact person name: <i>Dr. Patricia Ehrkamp</i>	Email: <i>p.ehrkamp@uky.edu</i>	Phone: <i>257-6952</i>
2. OVERVIEW			
2a	Provide a brief description of the proposed new graduate certificate. (300 word limit)		
	<i>Applied Environmental and Sustainability Studies (ENS) is an interdisciplinary field that prepares students to analyze complex environmental problems from a variety of perspectives and apply their findings to facilitate change. The Online Graduate Certificate in Applied Environmental and Sustainability Studies encourages a liberal arts approach by drawing from the social sciences, and the mathematics and natural science disciplines. By taking coursework across disciplines students develop skills required for success in the field. Those skills may include independent learning, oral and written communication, problem solving, academic knowledge in environmental issues; an understanding of sustainability as it pertains to healthy, productive, and equitable</i>		

¹ Only cross-disciplinary graduate certificates may be homed at the college level.

² Certificates are typically made effective for the semester following approval. No program will be made effective unless all approvals, up through and including University Senate approval, are received.

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	<i>quality of life for future generations. The Online Graduate Certificate in Applied Environmental and Sustainability Studies will be an option in the proposed Online Master's in Applied Environmental and Sustainability Studies. Upon completion of the 12 credit hours, students will be awarded the certificate. Students who choose to pursue the Master's will use 9 of the 12 credit hours from the certificate towards the Master's requirements. Admission into the certificate does not automatically grant admission into the Master's program.</i>		
2b	This proposed graduate certificate (check all that apply):		
	<input checked="" type="checkbox"/> Has a clear and focused academic competency as its subject.		
	<input type="checkbox"/> Meets a clearly defined educational need of a constituency group (e.g. continuing education or licensing)		
	<input type="checkbox"/> Responds to a specific state mandate.		
	<input checked="" type="checkbox"/> Provides a basic competency in an emerging, preferably interdisciplinary, topic.		
2c	Affiliation. Is the graduate certificate affiliated with a degree program? (related to 3c)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	If "yes," include a brief statement of how it will complement the program. If "no," incorporate a statement as to how it will provide an opportunity for a student to gain knowledge or skills not already available at UK. (300 word limit)		
	<i>We will offer the Online Graduate Certificate in Applied Environmental and Sustainability Studies as an option in the proposed Online Master's in Applied Environmental and Sustainability Studies. Upon completion of the 12 credit hours, students will be awarded the certificate. Students who choose to pursue the Master's will use 9 of the 12 credit hours from the certificate towards the Master's requirements. Admission into the certificate does not automatically grant admission into the Master's program. The curriculum in the certificate program compliments the curriculum in the Master's program by focusing on the core courses in Applied Environmental and Sustainability Studies. Student who choose to apply, and are accepted, to the Master's Program will build on the core curriculum to gain additional skills that allow them to understand sustainability as it pertains to healthy, productive, and equitable quality of life for future generations.</i>		
2d	Duplication. Are there similar regional or national offerings?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	If "Yes," explain how the proposed certificate will or will not compete with similar regional or national offerings.		
	<i>Please see attachment 2d for benchmarks</i>		
2e	Rationale and Demand. State the rationale for the new graduate certificate and explain the need for it (e.g. market demand, student requests, state mandate, interdisciplinary topic). (400 word limit)		
	<i>There is a persistent and growing demand among employers for workplace professionals who can promote sustainability. Employers are looking for candidates who can analyze environmental programs and apply their research to support a more sustainable future for generations. The College of Arts and Sciences already has an established undergraduate program in Environmental and Sustainability Studies. As of fall 2018, there are 90 students pursuing an undergraduate major in Environmental and Sustainability Studies and 21 students pursuing a minor in Environmental and Sustainability Studies. Based on a survey conducted in January 2019, there is a strong demand by current Environmental and Sustainability Studies undergraduate students for a graduate level program. According to Burning Glass the number of awarded Graduate Certificates in Environmental Studies has increased by almost 18% since 2013.</i>		
	<i>Please see Attachment 2e for survey responses and burning glass data.</i>		
2f	Target student population. Check the box(es) that apply to the target student population.		
	<input checked="" type="checkbox"/> Currently enrolled graduate students.		
	<input checked="" type="checkbox"/> Post-baccalaureate students.		

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2g	Describe the demographics of the intended audience. (150 word limit)
	<i>The online certificate program will be open to all students interested in expanding advanced environmental and sustainability skills. Our primary target audience includes currently enrolled students at the University of Kentucky, and workplace professionals who possess a Bachelor's degree and are seeking an advanced degree in important skills that will translate into greater professional opportunities. The Online Certificate in Applied Environmental and Sustainability Studies will be of interest to students who are pursuing a bachelor's degree in Environmental and Sustainability Studies (ENS), Geography (GEO), Natural Resources and Environmental Science (NRES), Forestry (FOR), Environmental Anthropology, Sociology (SOC), Management, Public Health (PH), and Public Policy.</i>

2h	Projected enrollment. What are the enrollment projections for the first three years?		
	<i>Year 1</i>	<i>Year 2 (Yr. 1 continuing + new entering)</i>	<i>Year 3 (Yrs. 1 and 2 continuing + new entering)</i>
	<i>Number of Students</i> 10	20	30

2i	Distance learning (DL). Initially, will any portion of the graduate certificate be offered via DL?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	If "Yes," please indicate below the percentage of the certificate that will be offered via DL.		
	1% - 24% <input type="checkbox"/>	25% - 49% <input type="checkbox"/>	50% - 74% <input type="checkbox"/>
	75 - 99% <input type="checkbox"/>	100% <input checked="" type="checkbox"/>	
	If "Yes," describe the DL course(s) in detail, including the number of required DL courses. (300 word limit)		
	<i>Please see attachment 2i</i>		

3. ADMINISTRATION AND RESOURCES

3a	Administration. Describe how the proposed graduate certificate will be administered, including admissions, student advising, retention, etc. (150 word limit)
	<i>The Online Graduate Certificate in Applied Environmental and Sustainability Studies will be administered by the certificate director who will be a member of the graduate faculty and appointed by the dean of the College of Arts and Sciences in consultation with the faculty of record. Following the guidelines from the Graduate School students will be admitted under the same requirements as post-baccalaureate students. Students must submit a transcript showing an awarded bachelor's degree, have an overall undergraduate grade point average of 2.50 or better and 3.00 on all previous graduate level coursework (both on a 4.00 point scale). The director of the certificate program will advise students, and retention will be monitored by the director of the certificate program in consultation with the faculty of record.</i>

3b	Faculty of Record and Certificate Director. (related to 2c) The faculty of record consists of the graduate certificate director and other faculty who will be responsible for planning and participating in the certificate program. The director must be a member of the Graduate Faculty of the University and is appointed by the dean of the Graduate School. The faculty of record must be comprised of three or more faculty. At least three members of the graduate certificate's faculty of record must be members of the Graduate Faculty.		
	The graduate certificate is affiliated with a degree program.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

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	<p>If “Yes,” list the name of the affiliated degree program below. If “No,” describe below the process for identifying the faculty of record and the certificate director, including selection criteria, term of service, and method for adding and removing members. <i>(150 word limit)</i></p>		
	<p>The online graduate certificate will be affiliated with the proposed Online Master's in Applied Environmental and Sustainability Studies. The College of Arts and Sciences will be submitting a proposal later this semester to move the Environmental and Sustainability Studies Interdisciplinary program into the Department of Geography. The interdisciplinary program is currently housed under the college. The faculty of record for both the Master's and the Graduate Certificate in Applied Environmental and Sustainability Studies will be the already established faculty of record in the Department of Geography. The Department of Geography has an established Doctoral and Master's program in Geography. They also have an established Online Master's and Graduate Certificate in Digital Mapping.</p> <p>The Department of Geography has 22 regular full-time faculty members. Of those regular full-time faculty members, 21 are members of the graduate faculty.</p>		
3c	<p>Course utilization. Will this graduate certificate include courses from another unit(s)?</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<p>If “Yes,” two pieces of supporting documentation are required.</p> <p><input checked="" type="checkbox"/> Check to confirm that appended to the end of this form is a letter of support from the other units’ chair/director³ from which individual courses will be used. The letter must include demonstration of true collaboration between multiple units⁴ and impact on the course’s use on the home educational unit.</p> <p><input checked="" type="checkbox"/> Check to confirm that appended to the end of this form is verification that the chair/director of the other unit has consent from the faculty members of the unit. This typically takes the form of meeting minutes.</p>		
3d	<p>Financial Resources. What are the (non-course) resource implications for the proposed graduate certificate, including any projected budget needs? <i>(300 word limit)</i></p>		
	<p><i>There are no (non-course) related resources needed to implement the Online Graduate Certificate in Applied Environmental and Sustainability Studies. The program will be offered 100% through distance learning, so no additional space or equipment will be needed.</i></p>		
3e	<p>Other Resources. Will the proposed certificate utilize resources (e.g. departmentally controlled equipment or lab space) from additional units/programs?</p>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	<p>If “Yes,” identify the other resources that will be shared. <i>(150 word limit)</i></p>		
	<p>The certificate will not utilize resources from additional units/programs.</p>		
	<p>If “Yes,” two pieces of supporting documentation are required.</p> <p><input type="checkbox"/> Check to confirm that appended to the end of this form is a letter of support from the appropriate chair/director⁴ of the unit whose “other resources” will be used.</p> <p><input type="checkbox"/> Check to confirm that appended to the end of this form is verification that the chair/director of the other unit has consent from the faculty members of the unit. This typically takes the form of meeting minutes.</p>		

³ A dean may submit a letter only when there is no educational unit below the college level, i.e. there is no department/school.

⁴ Show evidence of detailed collaborative consultation with such units early in the process.

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4. IMPACT

4a	Other related programs. Are there any related UK programs and certificates?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
If "Yes," describe how the new certificate will complement these existing UK offerings. (250 word limit)			
<p><i>The Online Graduate Certificate in Applied Environmental and Sustainability Studies is related to the Natural Resources and Environmental Science (NRES) Interdisciplinary Undergraduate Degree Program housed in the College of Agriculture, Food and Environment (CAFE). The Department of Geography, and the Environmental and Sustainability Studies Interdisciplinary program, have an established relationship with NRES. The Online Graduate Certificate in Applied Environmental and Sustainability Studies will complement the undergraduate degree in NRES by building on the foundation establish with advanced skills in natural and social sciences, communication, and problem solving.</i></p>			
If "Yes," two pieces of supporting documentation are required.			
<input checked="" type="checkbox"/> Check to confirm that appended to the end of this form is a letter of support from each potentially-affected academic unit administrators.			
<input checked="" type="checkbox"/> Check to confirm that appended to the end of this form is verification that the chair/director has input from the faculty members of the unit. This typically takes the form of meeting minutes.			

5. ADMISSIONS CRITERIA AND CURRICULUM STRUCTURE

5a	Admissions criteria. List the admissions criteria for the proposed graduate certificate. (150 word limit)
<p><i>Following the guidelines from the Graduate School students will be admitted under the same requirements as post-baccalaureate students. Students must submit a transcript showing an awarded bachelors degree, have an overall undergraduate grade point average of 2.50 or better and 3.00 on all previous graduate level coursework (both on a 4.00 point scale). The director of the certificate program will advise students, and retention will be monitored by the director of the certificate program in consultation with the faculty of record.</i></p>	

5b	Core courses. List the required core courses below.		
Prefix & Number	Course Title	Credit Hrs	Course Status ⁵
	<i>Please see attachment 5b and 5c for curriculum</i>		Select one....
			Select one....
			Select one....
			Select one....
			Select one....
	<i>Total Credit Hours of Core Courses:</i>		

5c	Elective courses. List the electives below.		
Prefix & Number	Course Title	Credit Hrs	Course Status ⁶
	<i>Please see attachment 5b and 5c for curriculum</i>		Select one....

⁵ Use the drop-down list to indicate if the course is a new course ("new"), an existing course that will change ("change"), or if the course is an existing course that will not change ("no change").

⁶ Use the drop-down list to indicate if the course is a new course ("new"), an existing course that will change ("change"), or if the course is an existing course that will not change ("no change").

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			Select one....
			Select one....
			Select one....
			Select one....
			Select one....

5d	Are there any other requirements for the graduate certificate? If “Yes,” note below. (150 word limit)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
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5e	Is there any other narrative about the graduate certificate that should be included in the Bulletin? If “Yes,” please note below. (300 word limit)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
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The Graduate School requires that a student must have a minimum GPA of 3.0 in the set of courses required for completion of the graduate certificate in order to be awarded the certificate.

6. ASSESSMENT

6a	Student learning outcomes. Please provide the student learning outcomes for the graduate certificate. List the knowledge, competencies, and skills (learning outcomes) students will be able to do upon completion. (Use action verbs, not simply “understand.”) (250 word limit)
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Upon complete of the Online Graduate Certificate in Applied Environmental and Sustainability Studies will be able to:

- 1. Identify environmental challenges that face the world and demonstrate the implications and limitations for future generation through research. (Integrative Knowledge)*
- 2. Differentiate and evaluate the strengths and weaknesses of different methodologies and techniques to address environmental challenges. (Intellectual skills)*
- 3. Demonstrate an understanding of environmental and sustainability studies, and look beyond individual and local interests to identify and evaluate our social and economic responsibilities. (Civic Learning)*

6b	Student learning outcome (SLO) assessment. How and when will student learning outcomes be assessed? Please map proposed measures to the SLOs they are intended to assess. Do not use grades or indirect measures (e.g. focus groups, surveys) as the sole method. Measures likely include artifacts such as course-embedded assessment (e.g., portfolios, research papers or oral presentations); and course-embedded test items (embedded test questions, licensure/certification testing, nationally or state-normed exams). (300 word limit)
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Please see attachment 6 for student learning outcome assessment map.

6c	Certificate outcome assessment⁷. Describe evaluation procedures for the proposed graduate certificate. Include how the faculty of record will determine whether the program is a success or a failure. List the benchmarks, the assessment tools, and the plan of action if the program does not meet its objectives. (250 word limit)
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The success of the certificate program will be examined from both the faculty and student perspectives. The Program will conduct post-graduate surveys to determine student satisfaction. Items such as the range of course offerings, effectiveness of and ways to improve online delivery, and perceived value and usefulness of the degree will be assessed. The Program will also conduct post-graduate surveys of participants’ employers, where possible,

⁷ This is a plan of how the certificate will be assessed, which is different from assessing student learning outcomes.

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to determine workplace satisfaction and the synergy between instruction and workplace demand. The program will additionally assess completion rates. If 90% of students enrolled are not completing the certificate, the program will reassess its curriculum and design. All instructors will use the University Teacher Course Evaluation (TCE) process to be evaluated by their students each semester. Each instructor will be asked to provide a self-reflection which will include areas of improvement during the biannual faculty merit evaluation report process. The certificate director will review the teacher course evaluation results with the instructors and provide feedback to the instructors on an annual basis, and discuss self-reflection on a biannual basis. The program director will be responsible for collating the assessment data and writing the annual assessment report, in collaboration with a sub-set of the faculty of record. The annual report will be shared with the full faculty of record, and improvements or adjustments to the curriculum will be discussed annually, after the results of the report have been discussed

7. OTHER INFORMATION

7a Is there any other information about the graduate certificate to add? (150 word limit)
n/a

8. APPROVALS/REVIEWS

Information below does not supersede the requirement for individual letters of support from educational unit administrators and verification of faculty support (typically takes the form of meeting minutes).

	Reviewing Group Name	Date Approved	Contact Person Name/Phone/Email
8a	<i>(Within College) In addition to the information below, attach documentation of department and college approval. This typically takes the form of meeting minutes but may also be an email from the unit head reporting department- and college-level votes.</i>		
			/ /
			/ /
			/ /
			/ /

8b	(Collaborating and/or Affected Units)		
			/ /
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			/ /

8c	(Senate Academic Council)	Date Approved	Contact Person Name
	Health Care Colleges Council (if applicable)		
	Graduate Council	4/4/19	Roshan Nikou

2d. Benchmarks

**2d. University of Kentucky Benchmarks/National and Regional Benchmarks
Online Graduate Certificate in Applied Environmental and Sustainability Studies**

University of Kentucky Benchmarks	Graduate Certificate	
University of California-Davis	no	
University of Iowa	no	
Michigan State University	no	
University of Missouri-Columbia	no	
University of Arizona	Yes- Graduate Certificate in Water Policy	12 credit hours/ face-to-face
University of Minnesota-Twin Cities	no	
Ohio State University-Main Campus	no	
University of Michigan-Ann Arbor	Yes- Graduate Certificate in sustainability	12 credit hours/ face-to-face
University of Wisconsin-Madison	no	
University of North Carolina at Chapel Hill	no	
University of Florida	no	

Regional Benchmarks	Graduate Certificate	Credit Hours
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The following institutions were identified by the Council on Postsecondary Education as having a Graduate Certificate using the CIP Code 03.0103

National Benchmarks	Graduate Certificate	Credit Hours
<i>The following institutions were identified by Burning Glass as having an online Graduate Certificate using CIP Code 03.0103</i>		
American Public University System	Yes	
Columbia Southern University	Yes- Graduate Certificate in Environmental Management	12 credit hours/Online
Arizona State University-Skysong	Yes- Graduate Certificate in Sustainable Tourism	18 credit hours/Online
Colorado State University-Fort Collins	Yes- Graduate Certificate in Applied Global Stability: Natural Resources	12 credit hours/Online
Truman State University	Yes- Graduate Certificate in Sustainability and Environmental Studies	12 credit hours/Online

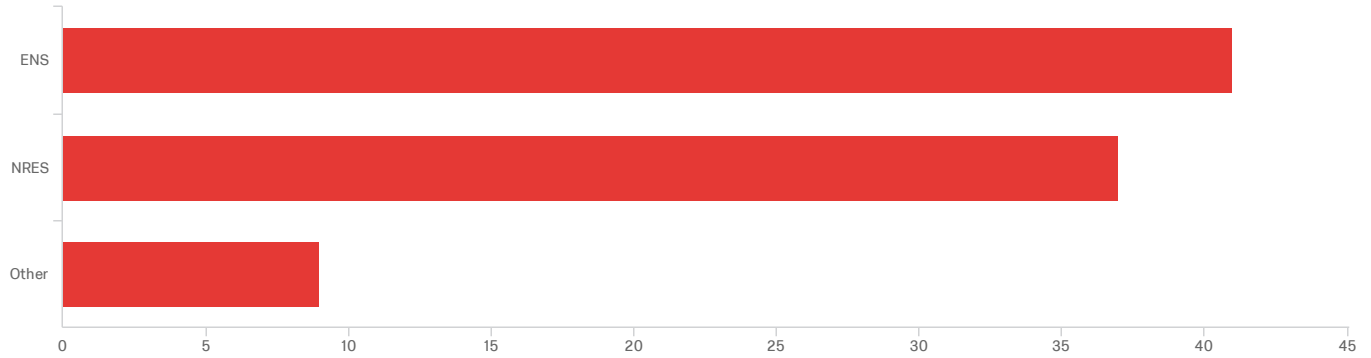
2e. Survey and Burning Glass Data

Default Report

Interest in MA in Applied Environmental and Sustainability Studies

February 4, 2019 1:52 PM MST

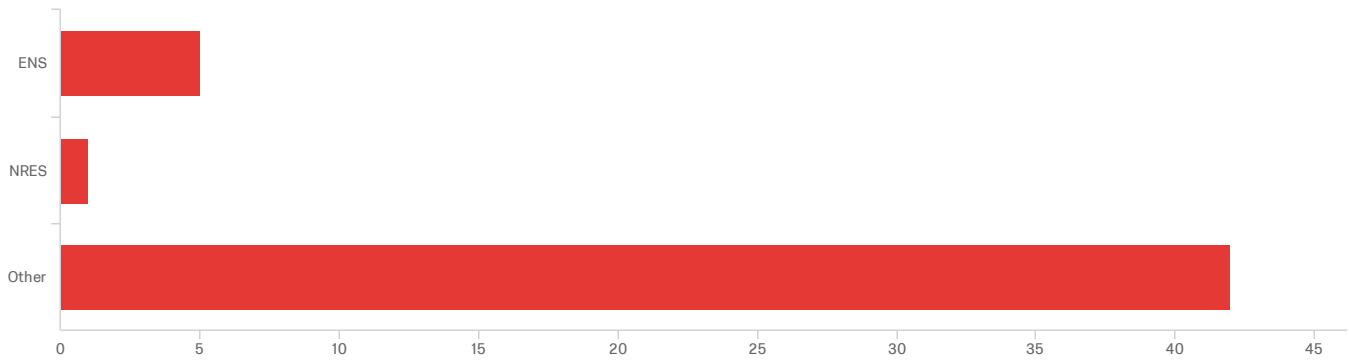
Q1 - What is your current undergraduate major?



#	Field	Choice Count
1	ENS	47.13% 41
2	NRES	42.53% 37
3	Other	10.34% 9
		87

Showing rows 1 - 4 of 4

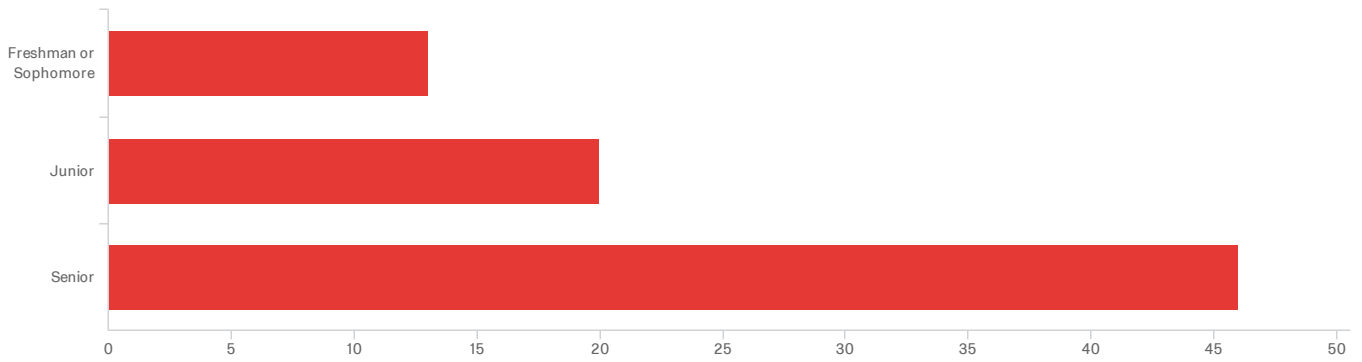
Q2 - Are you a minor in one of the following?



#	Field	Choice Count
1	ENS	10.42% 5
2	NRES	2.08% 1
3	Other	87.50% 42
		48

Showing rows 1 - 4 of 4

Q3 - What is your current student status?



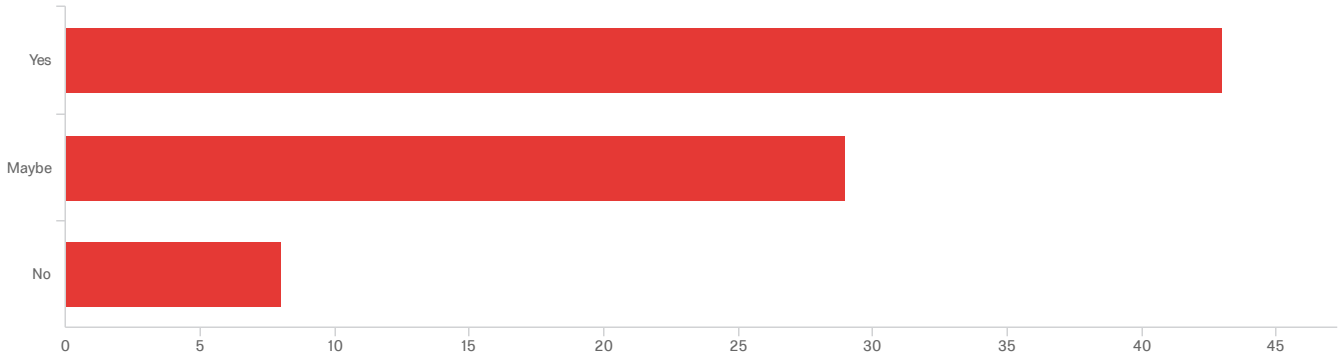
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What is your current student status?	1.00	3.00	2.42	0.76	0.57	79

#	Field	Choice Count
1	Freshman or Sophomore	16.46% 13
2	Junior	25.32% 20
3	Senior	58.23% 46
		79

Showing rows 1 - 4 of 4

Q4 - Would you be interested in a Master's in Applied Environmental and Sustainability

Studies at UK?

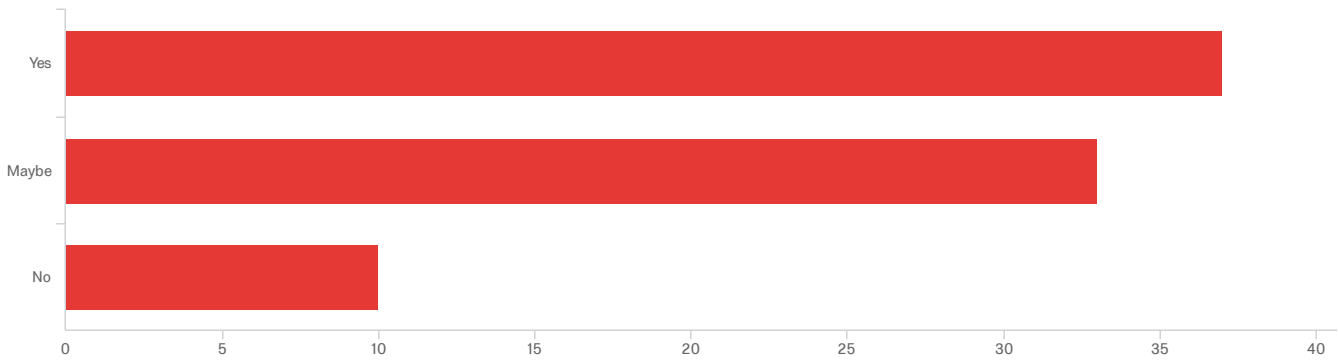


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Would you be interested in a Master's in Applied Environmental and Sustainability Studies at UK?	1.00	3.00	1.56	0.67	0.45	80

#	Field	Choice Count
1	Yes	53.75% 43
2	Maybe	36.25% 29
3	No	10.00% 8
		80

Showing rows 1 - 4 of 4

Q5 - Would you be interested in earning a Master's degree online?

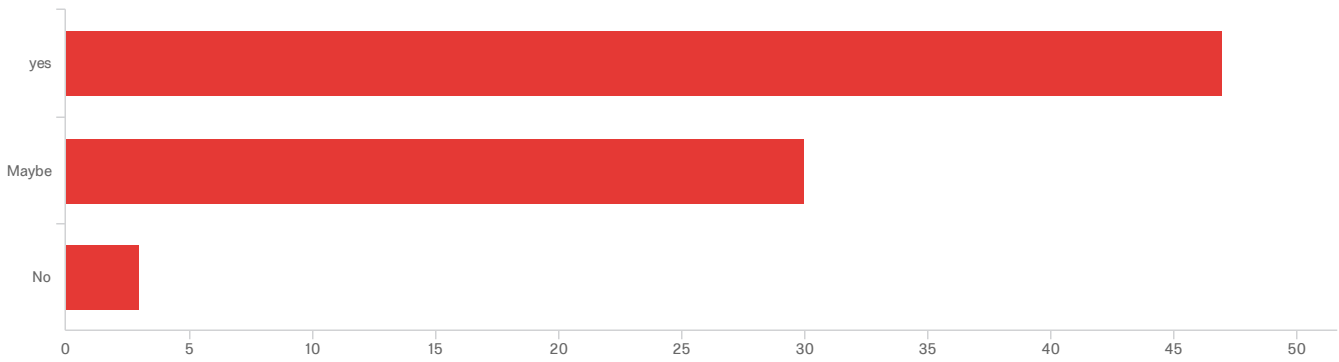


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Would you be interested in earning a Master's degree online?	1.00	3.00	1.66	0.69	0.47	80

#	Field	Choice Count
1	Yes	46.25% 37
2	Maybe	41.25% 33
3	No	12.50% 10
		80

Showing rows 1 - 4 of 4

Q6 - Would you be interested in pursuing a Master's degree as a part-time option?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Would you be interested in pursuing a Master's degree as a part-time option?	1.00	3.00	1.45	0.57	0.32	80

#	Field	Choice Count
1	yes	58.75% 47
2	Maybe	37.50% 30
3	No	3.75% 3
		80

Showing rows 1 - 4 of 4

Q7 - Please leave any additional information that you would like us to know in the space provided below.

End of Report

Occupational Deep Dive

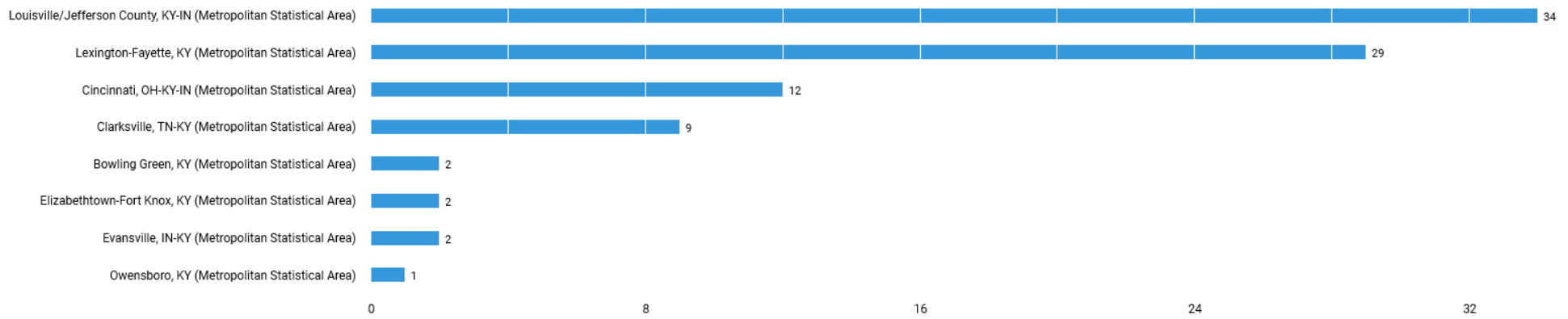
There are (169 job postings) between (Feb. 08, 2018 - Feb. 07, 2019 (Data not available after Feb. 05, 2019)) in your area for the selected criteria.

Active Selections

Last 365 days AND (State : KY) AND (Occupation Family : Life, Physical, and Social Science) AND ((Education : Bachelor's degree or higher (inferred)) AND (Education : Bachelor's degree (specified))) AND (Cluster : Environment: Air Quality OR Cluster : Environment: Conservation OR Cluster : Environment: Ecology OR Cluster : Environment: Emissions Management OR Cluster : Environment: Environmental Geology))

What does demand for this occupation look like?

The jobs are in the following locations



Unclassified postings: 78

Occupational Deep Dive

There are (169 job postings) between (Feb. 08, 2018 - Feb. 07, 2019 (Data not available after Feb. 05, 2019)) in your area for the selected criteria.

Active Selections

Last 365 days AND (State : KY) AND (Occupation Family : Life, Physical, and Social Science) AND ((Education : Bachelor's degree or higher (inferred)) AND (Education : Bachelor's degree (specified))) AND (Cluster : Environment: Air Quality OR Cluster : Environment: Conservation OR Cluster : Environment: Ecology OR Cluster : Environment: Emissions Management OR Cluster : Environment: Environmental Geology))

The following occupations and job titles are in demand

Occupation		Job Postings	
Environmental Scientists and Specialists, Including Health		51	
Job Titles	Job Posting	Job Titles	Job Posting
Environmental Scientist	33	Manager	1
Environmental Specialist	11	Principal Environmental Consultant	1
Environmental Protection Specialist	2	Radiation Health Specialist	1
Safety Specialist	2		
Quality Control Analysts		19	
Job Titles	Job Posting	Job Titles	Job Posting
Quality Control Technician	5	Quality Control Specialist	2
Quality Specialist	4	Administrative Specialist	1
Quality Control Analyst	3	Quality Assurance Specialist	1
Chemist	2	Quality Assurance Technician	1
Geoscientists, Except Hydrologists and Geographers		12	
Job Titles	Job Posting	Job Titles	Job Posting
Geologist	7	Field Geologist	2
Staff Geologist	3		
Zoologists and Wildlife Biologists		10	
Job Titles	Job Posting	Job Titles	Job Posting
Wildlife Biologist	5	Fisheries Biologist	1
Fish Biologist	2	Route Wildlife Specialist	1
Fish And Wildlife Management Foreman	1		
Chemists		9	
Job Titles	Job Posting	Job Titles	Job Posting
Chemist	5	Scientist II	1
Associate Research Validation Scientist	3		
Biological Technicians		8	
Job Titles	Job Posting	Job Titles	Job Posting
Wildlife Technician	5	Microbiology Technician	1
Laboratory Technician	1	Research Technician	1

Forest and Conservation Technicians		7	
Job Titles	Job Posting	Job Titles	Job Posting
Forestry Technician	5	Soil Conservation Technician	1
Forestry Technician, Recreation	1		
Foresters		7	
Job Titles	Job Posting	Job Titles	Job Posting
Forester	5	Management Forester	1
Forestry Program Specialist	1		
Soil and Water Conservationists		7	
Job Titles	Job Posting	Job Titles	Job Posting
Soil Conservationist	2	Landscape Architect	1
District Conservationist	1	Supervisory Skills Natural Resources Scientist/Specialist, General	1
Land Use Planner	1	Supervisory Skills Natural Resources Scientist/Specialist, General, Staff	1
Urban and Regional Planners		6	
Job Titles	Job Posting	Job Titles	Job Posting
Planner	3	Senior Planner, Planning	1
Safety Planner	1	Senior Planner, Planning, Urban Design	1
Archeologists		5	
Job Titles	Job Posting	Job Titles	Job Posting
Archeologist	4	Archaeologist	1
Park Naturalists		5	
Job Titles	Job Posting	Job Titles	Job Posting
Park Ranger	3	Trainee Natural Resources Specialist/Ranger	1
Ranger	1		
Biologists		4	
Job Titles	Job Posting	Job Titles	Job Posting
Biologist	1	Senior Research Validation Scientist	1
Natural Resources Management And Biological Sciences	1	Senior Scientist, Biomarkers	1
Soil and Plant Scientists		3	
Job Titles	Job Posting	Job Titles	Job Posting
Agronomist			3
Agricultural Technicians		2	
Job Titles	Job Posting	Job Titles	Job Posting
Agricultural Lease Technician			2

Environmental Restoration Planners	2
Job Titles	Job Posting
Stream Restoration Professionals	2
Hydrologists	2
Job Titles	Job Posting
Hydrologist	2
Political Scientists	2
Job Titles	Job Posting
Policy Analyst	2
Food Science Technicians	1
Job Titles	Job Posting
Custom Applicator	1
Food Scientists and Technologists	1
Job Titles	Job Posting
Food Safety Scientist, Microbiology	1
Geological Sample Test Technicians	1
Job Titles	Job Posting
Materials Technician	1
Geophysical Data Technicians	1
Job Titles	Job Posting
Geologist	1
Medical Scientists, Except Epidemiologists	1
Job Titles	Job Posting
Senior Clinical Laboratory Scientist	1
Physical Scientists, All Other	1
Job Titles	Job Posting
Physical Scientist	1
Precision Agriculture Technicians	1
Job Titles	Job Posting
Crop Specialist	1
Social Science Research Assistants	1
Job Titles	Job Posting
Technician	1

Unclassified postings: 0

Occupational Deep Dive

There are (169 job postings) between (Feb. 08, 2018 - Feb. 07, 2019 (Data not available after Feb. 05, 2019)) in your area for the selected criteria.

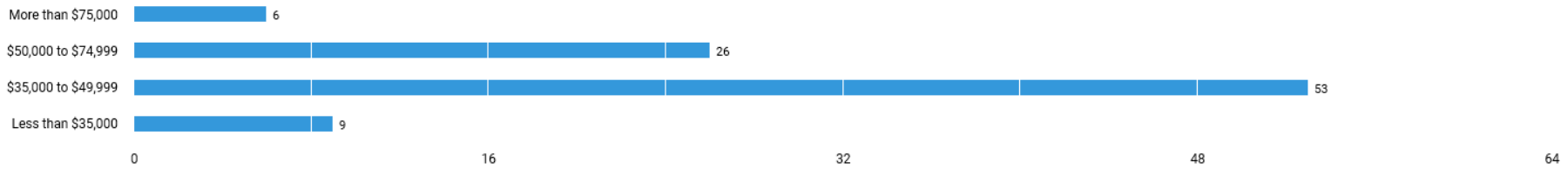
Active Selections

Last 365 days AND (State : KY) AND (Occupation Family : Life, Physical, and Social Science) AND ((Education : Bachelor's degree or higher (inferred)) AND (Education : Bachelor's degree (specified))) AND (Cluster : Environment: Air Quality OR Cluster : Environment: Conservation OR Cluster : Environment: Ecology OR Cluster : Environment: Emissions Management OR Cluster : Environment: Environmental Geology))

What are salary indicators for this occupation?

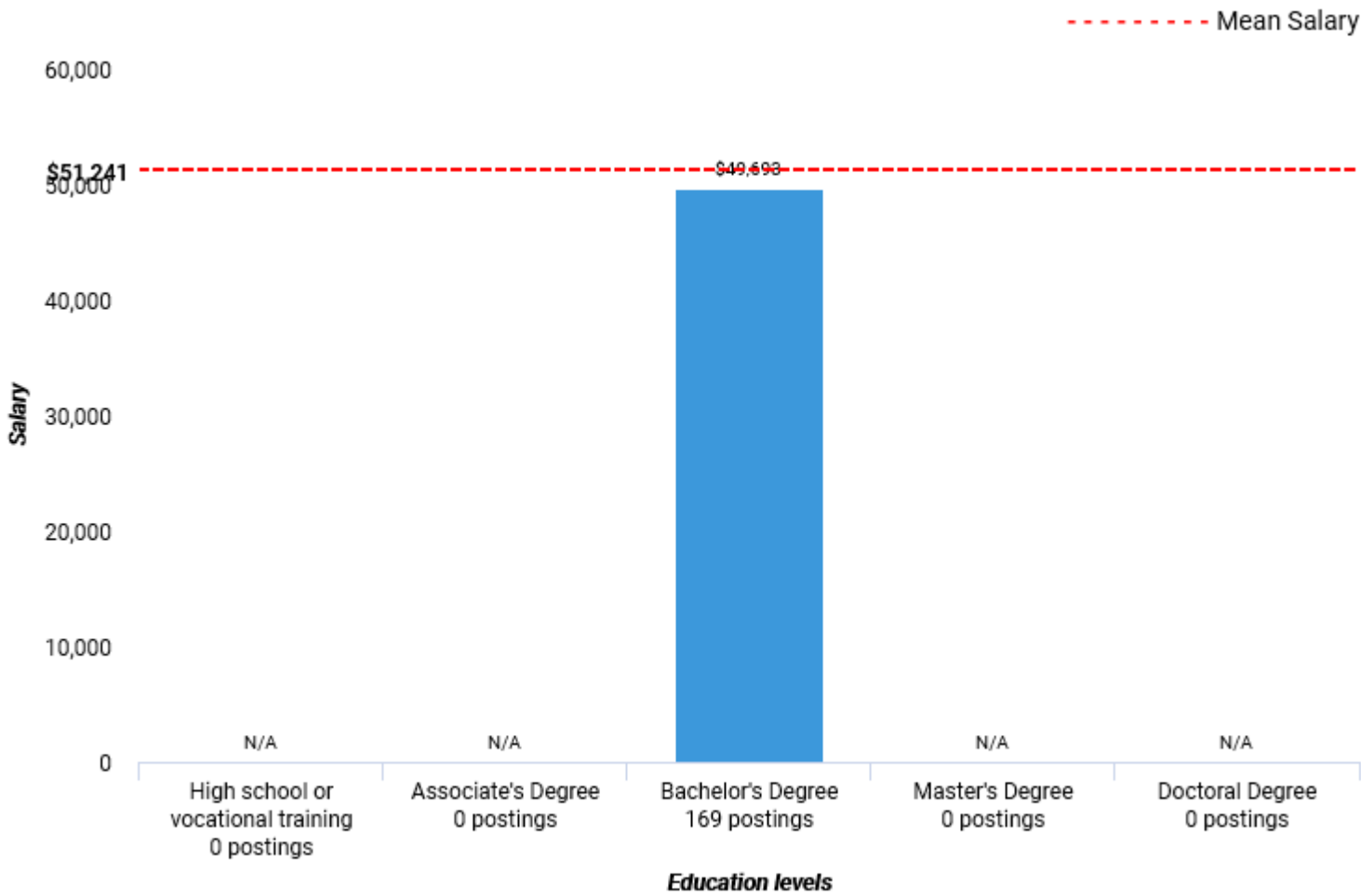
The salaries of these jobs are distributed across the following categories

Mean real-time salary = \$50K
Median real-time salary = \$44K



Unclassified postings: 75

The salaries of these jobs are distributed across the following education attainment levels



Unclassified postings: 0

Occupational Deep Dive

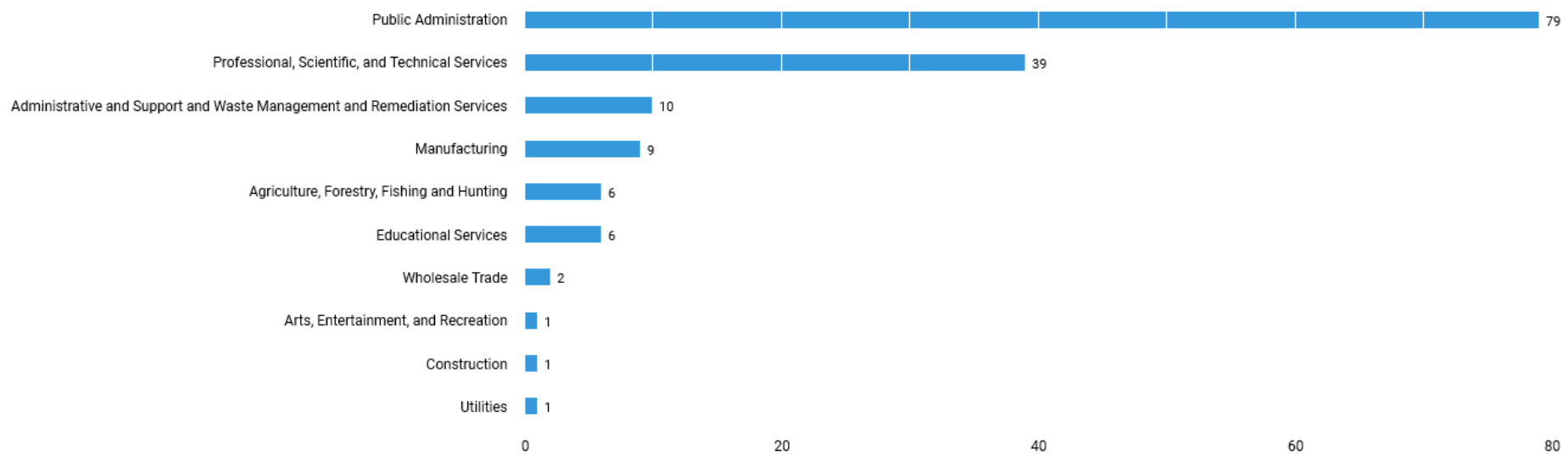
There are (169 job postings) between (Feb. 08, 2018 - Feb. 07, 2019 (Data not available after Feb. 05, 2019)) in your area for the selected criteria.

Active Selections

Last 365 days AND (State : KY) AND (Occupation Family : Life, Physical, and Social Science) AND ((Education : Bachelor's degree or higher (inferred)) AND (Education : Bachelor's degree (specified))) AND (Cluster : Environment: Air Quality OR Cluster : Environment: Conservation OR Cluster : Environment: Ecology OR Cluster : Environment: Emissions Management OR Cluster : Environment: Environmental Geology))

Who is hiring and in what industries?

The jobs are categorized into the following industries



Unclassified postings: 15

Occupational Deep Dive

There are (169 job postings) between (Feb. 08, 2018 - Feb. 07, 2019 (Data not available after Feb. 05, 2019)) in your area for the selected criteria.

Active Selections

Last 365 days AND (State : KY) AND (Occupation Family : Life, Physical, and Social Science) AND ((Education : Bachelor's degree or higher (inferred)) AND (Education : Bachelor's degree (specified))) AND (Cluster : Environment: Air Quality OR Cluster : Environment: Conservation OR Cluster : Environment: Ecology OR Cluster : Environment: Emissions Management OR Cluster : Environment: Environmental Geology))

The following employers are hiring for these job titles

Employer		Job Postings	
Commonwealth of Kentucky		34	
Job Titles	Job Posting	Job Titles	Job Posting
Environmental Scientist	21	Environmental Specialist	1
Forester	2	Fish And Wildlife Management Foreman	1
Geologist	2	Fisheries Biologist	1
Policy Analyst	2	Forestry Program Specialist	1
Chemist	1	Radiation Health Specialist	1
US Department of Agriculture		10	
Job Titles	Job Posting	Job Titles	Job Posting
Forestry Technician	2	Hydrologist	1
Archeologist	1	Landscape Architect	1
District Conservationist	1	Soil Conservation Technician	1
Forester	1	Supervisory Skills Natural Resources Scientist/Specialist, General, Staff	1
Forestry Technician, Recreation	1		
Commonwealth Ky		8	
Job Titles	Job Posting	Job Titles	Job Posting
Environmental Scientist	6	Wildlife Biologist	1
Forester	1		
Department Army		7	
Job Titles	Job Posting	Job Titles	Job Posting
Archeologist	1	Physical Scientist	1
Chemist	1	Trainee Natural Resources Specialist/Ranger	1
Forester	1	Wildlife Biologist	1
Park Ranger	1		
Forest Service		6	
Job Titles	Job Posting	Job Titles	Job Posting
Forestry Technician	2	Supervisory Skills Natural Resources Scientist/Specialist, General	1
Archeologist	1	Wildlife Biologist	1
Hydrologist	1		

Pharmaceutical Product Development		6	
Job Titles	Job Posting	Job Titles	Job Posting
Associate Research Validation Scientist	3	Senior Research Validation Scientist	1
Senior Clinical Laboratory Scientist	1	Senior Scientist, Biomarkers	1
Rollins Incorporated		6	
Job Titles	Job Posting	Job Titles	Job Posting
Wildlife Technician	5	Route Wildlife Specialist	1
Terracon Consultants, Inc.		5	
Job Titles	Job Posting	Job Titles	Job Posting
Field Geologist	2	Geologist	1
Staff Geologist	2		
Bechtel		4	
Job Titles	Job Posting	Job Titles	Job Posting
Quality Control Specialist	2	Materials Technician	1
Geologist	1		
Stantec, Inc.		4	
Job Titles	Job Posting	Job Titles	Job Posting
Stream Restoration Professionals	2	Geologist	1
Environmental Scientist	1		
Arcadis		3	
Job Titles	Job Posting	Job Titles	Job Posting
Environmental Scientist	2	Geologist	1
University of Kentucky		3	
Job Titles	Job Posting	Job Titles	Job Posting
Geologist	1	Research Technician	1
Management Forester	1		
American Planning Association		2	
Job Titles	Job Posting	Job Titles	Job Posting
Land Use Planner	1	Senior Planner, Planning, Urban Design	1
Army Corps of Engineers		2	
Job Titles	Job Posting	Job Titles	Job Posting
Park Ranger			2
Avantor		2	
Job Titles	Job Posting	Job Titles	Job Posting
Quality Control Analyst	1	Quality Control Technician	1

Avantor Performance Materials		2	
Job Titles	Job Posting	Job Titles	Job Posting
Quality Control Analyst	1	Quality Control Technician	1
Avantor, Inc		2	
Job Titles	Job Posting	Job Titles	Job Posting
Quality Control Analyst	1	Quality Control Technician	1
City Louisville		2	
Job Titles	Job Posting	Job Titles	Job Posting
Planner	1	Quality Control Technician	1
Colorado State University		2	
Job Titles			Job Posting
Agricultural Lease Technician			2
Hb Fuller Company		2	
Job Titles			Job Posting
Safety Specialist			2
Lg&E And Ku Energy		2	
Job Titles	Job Posting	Job Titles	Job Posting
Environmental Scientist	1	Scientist II	1
Louisville Metro Government		2	
Job Titles	Job Posting	Job Titles	Job Posting
Planner	1	Quality Control Technician	1
Louisville Water Company		2	
Job Titles			Job Posting
Quality Specialist			2
Nestle USA Incorporated		2	
Job Titles			Job Posting
Quality Specialist			2
US Army		2	
Job Titles	Job Posting	Job Titles	Job Posting
Archeologist	1	Wildlife Biologist	1

Unclassified postings: 8

Occupational Deep Dive

There are (169 job postings) between (Feb. 08, 2018 - Feb. 07, 2019 (Data not available after Feb. 05, 2019)) in your area for the selected criteria.

Active Selections

Last 365 days AND (State : KY) AND (Occupation Family : Life, Physical, and Social Science) AND ((Education : Bachelor's degree or higher (inferred)) AND (Education : Bachelor's degree (specified))) AND (Cluster : Environment: Air Quality OR Cluster : Environment: Conservation OR Cluster : Environment: Ecology OR Cluster : Environment: Emissions Management OR Cluster : Environment: Environmental Geology))

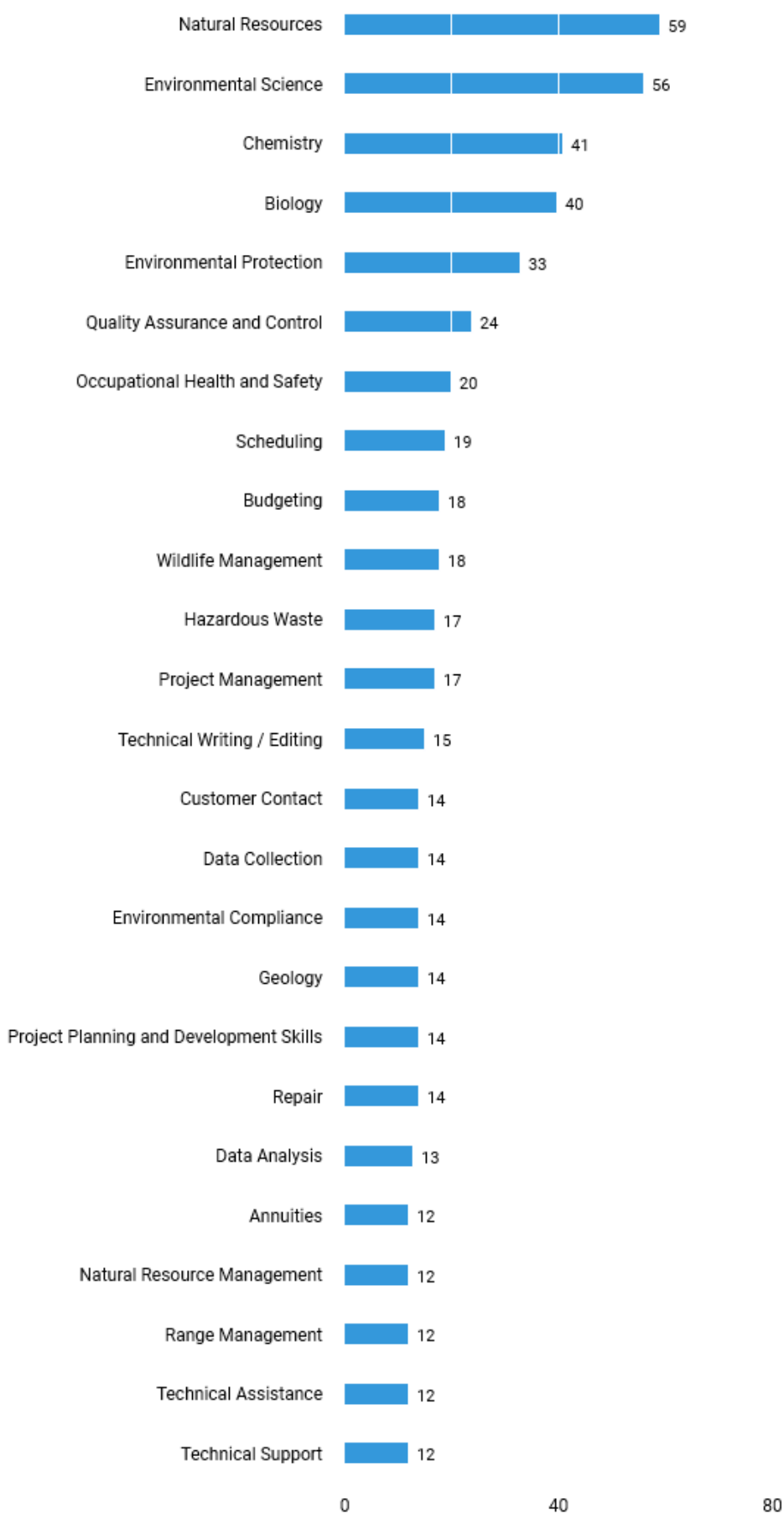
What credentials are needed for the job?

The following skills are most requested (Specialized Skills)

Feb. 08, 2018 - Feb. 07, 2019 (Data not available after Feb. 05, 2019)

There are 169 postings available with the current filters applied.

There are 0 unspecified or unclassified postings.



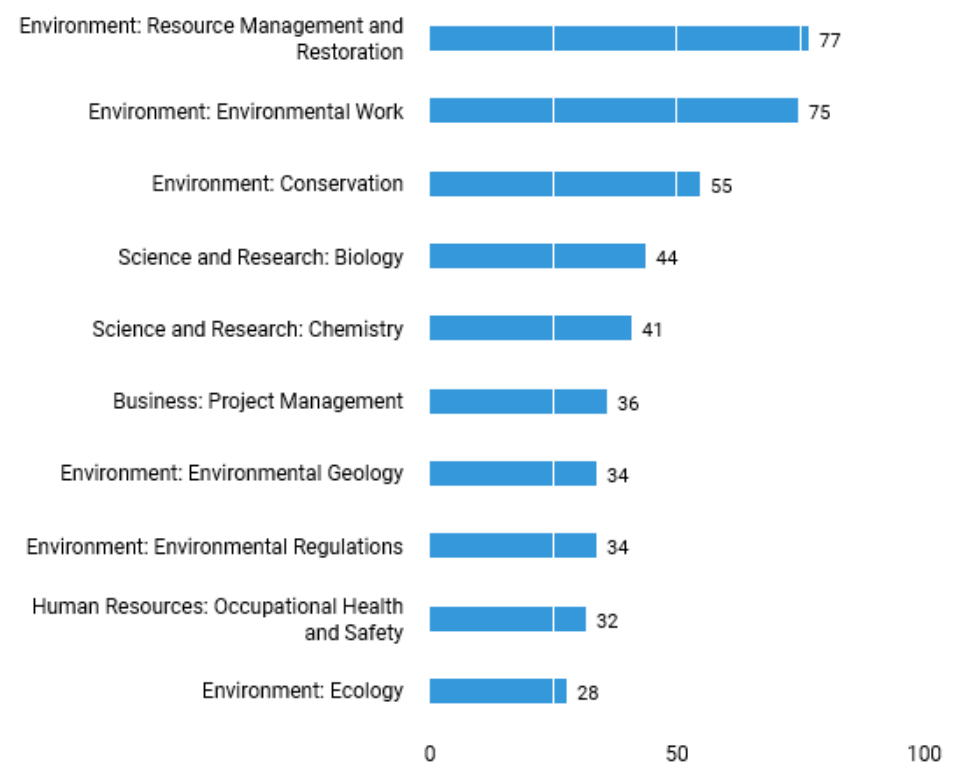
Unclassified postings: 0

The following skill clusters are most requested

Feb. 08, 2018 - Feb. 07, 2019 (Data not available after Feb. 05, 2019)

There are 169 postings available with the current filters applied.

There are 0 unspecified or unclassified postings.



Unclassified postings: 0

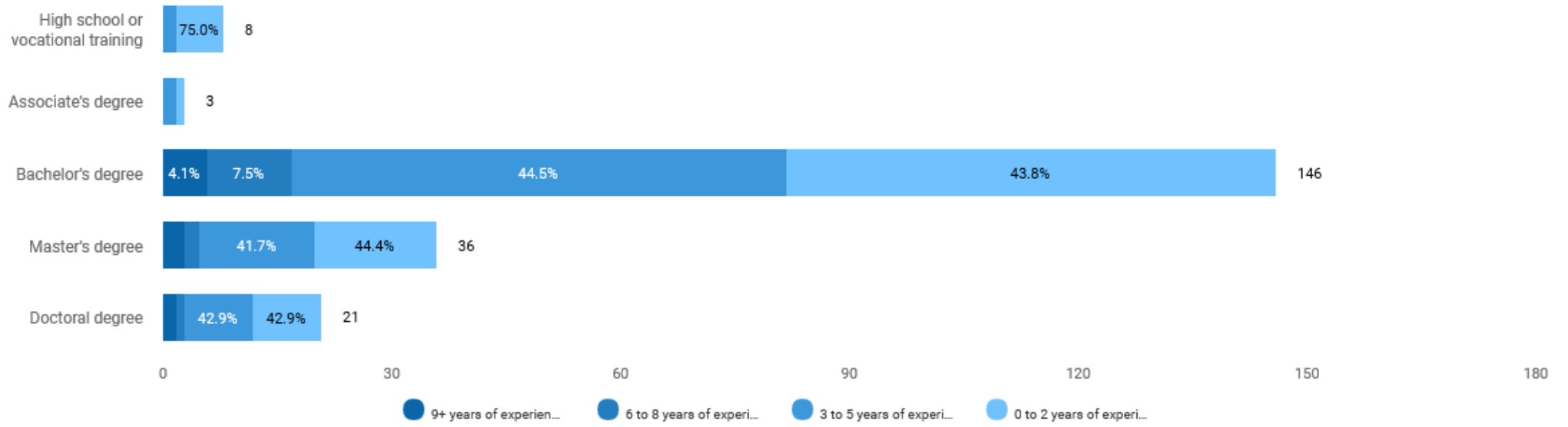
Occupational Deep Dive

There are (169 job postings) between (Feb. 08, 2018 - Feb. 07, 2019 (Data not available after Feb. 05, 2019)) in your area for the selected criteria.

Active Selections

Last 365 days AND (State : KY) AND (Occupation Family : Life, Physical, and Social Science) AND ((Education : Bachelor's degree or higher (inferred)) AND (Education : Bachelor's degree (specified))) AND (Cluster : Environment: Air Quality OR Cluster : Environment: Conservation OR Cluster : Environment: Ecology OR Cluster : Environment: Emissions Management OR Cluster : Environment: Environmental Geology))

The following levels of education and levels of experience are requested



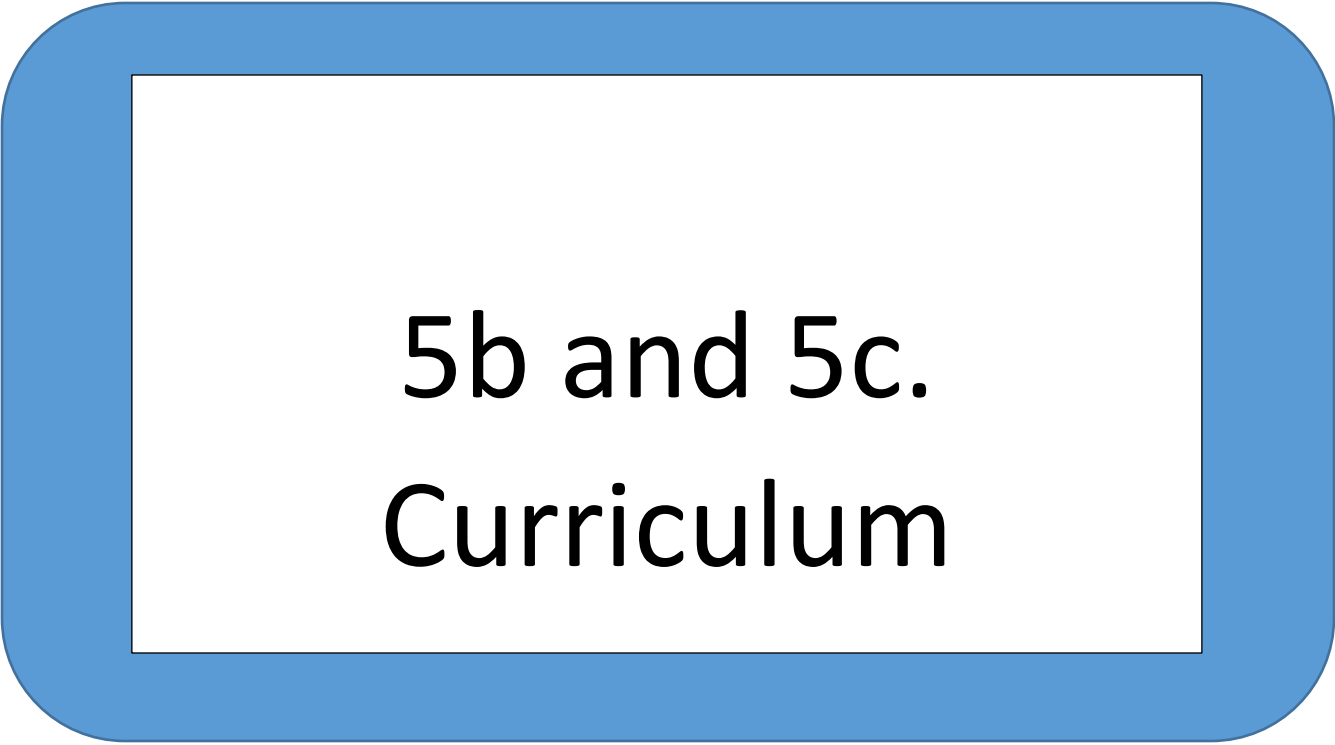
Unclassified postings: 23



2i. Distance Learning Courses

2I Distance Learning Courses

ENS 601	Environment and Sustainability: Issues and Ideas This course will survey some of the most important environmental problems (climate change, biodiversity loss, deforestation, water scarcity) and the tools needed to analyze, understand, and respond to these problems (market-based solutions, political economy, institutional economic theories, environmental ethics). Students will also explore new scientific ideas on sustainability to better understand the contemporary environmental problems the world is facing. With rigorous thinking about the science of sustainability, students will have the knowledge and skills so that they can help institutions, business, public policy, and individuals understand and act on key principles of sustainability.	3 credit hours
ENS 602	Environment and Sustainability Policy and Governance This course will explore the roles of governments, markets, and civil society in the creation, adoption, and implementation of environmental and sustainability rules and norms. We evaluate leading environmental and policy strategies, including traditional state regulation, market-based incentives and regulation creative by private actors (civil society and corporations/Corporate Social Responsibility). Increasingly, the interactions between different forms of regulation figure prominently in debates about environmental and sustainability governance. We will draw upon empirical examples of governance and policy for a diverse set of environmental and sustainability challenges and solutions. Students will be develop strong critical thinking and problem-solving skills in order to contribute to environmental and sustainability policy and governance.	3 credit hours
ENS 603	Communicating Environmental Knowledge The goal of this course is for students to have an understanding of the latest scientific research in the field of environment and sustainability studies and gain the tools to communicate this research effectively to the public. In addition, students will learn key technical writing skills to apply knowledge in environmental and sustainability studies. For technical writing, students will develop skills for writing letters, grant proposals, reports, and presentations for specific audiences. To communicate with a broad audience about the questions central to environmental and sustainability studies, students will write short articles, record podcasts, make videos, craft memes, and author multimodal texts. Storytelling and clear description will also be emphasized across multiple platforms, which will include blogs, audio podcasts and short videos, among others. Students will build the critical skillsets necessary for technical writing as well as craft dynamic and compelling stories about environment and sustainability issues.	3 credit hours
LA/NRE 556	Contemporary Geospatial Applications for Land and Analysis Advance concepts in data base analysis, model development, and ancillary functions in geographic information systems. Lecture, two hours; laboratory, four hours per week. Prereq: LA 355/NRE 355 and permission of instructor.	3 credit hours
MAP 671	Introduction to Mapping This course introduces students to both the social and technical aspects of digital mapping in the 21st century. Students will learn fundamental concepts and techniques in cartography and GIS, including file types, data classification, projections and coordinate systems and elementary analytical techniques in a range of desktop and web-based mapping platforms. In addition to providing the fundamental technical competencies necessary to create maps, students will develop the critical awareness required to effectively communicate complex social processes through maps.	3 credit hours
STA 570	Basic Statistical Analysis Introduction to methods of analyzing data from experiments and surveys; the role of statistics in research, statistical concepts and models; probability and distribution functions; estimation; hypothesis testing; regression and correlation; analysis of single and multiple classification models; analysis of categorical data.	3 credit hours
STA 674	Regression Analysis and Design of Experiments Course begins with an applied regression module that emphasizes analysis and interpretation of real data, and statistical computing. Second part of course focuses on principles and implementation of experimental design for scientific research purposes. Standard designs presented along with the proper kinds of analysis for each. Continued emphasis on real data and statistical computing using R and/or SAS.	3 credit hours
STA 677	Applied Multivariate Methods Survey of multivariate statistical techniques important in applied research. Focus on multivariate structure-seeking methods, but attention given to important hypothesis testing applications in ANOVA and MANOVA. Emphasis on implementation using modern statistical software and interpretation of results in context.	3 credit hours



5b and 5c.
Curriculum

Online Graduate Certificate in Applied Environmental and Sustainability Studies Curriculum

We will offer the graduate certificate in Applied Environmental and Sustainability Studies as an option in the proposed MA in Applied Environmental and Sustainability Studies. Upon completion of the 12 credit hours, students will be awarded the certificate. Students who choose to pursue the MA will use 9 of the 12 credit hours from the certificate towards the MA requirements. Admission into the certificate does not automatically grant admission into the MA program.

Core Courses (9 Credit Hours)

ENS 601	Environment and Sustainability: Issues and Ideas	3 credit hours
ENS 602	Environment and Sustainability Policy and Governance	3 credit hours
ENS 603	Communicating Environmental Knowledge	3 credit hours

Electives (3 Credit Hours)

Students must take a total of 3 credit hours from the courses listed below.

LA/NRE 556	Contemporary Geospatial Applications for Land and Analysis	3 credit hours
MAP 671	<i>Introduction to Mapping</i>	3 credit hours
STA 570	Basic Statistical Analysis	3 credit hours
STA 674	Regression Analysis and Design of Experiments	3 credit hours
STA 677	Applied Multivariate Methods	3 credit hours

Total Credit Hours 12

6. Assessment

6. Online Graduate Certificate in Applied Environmental and Sustainability Studies

ASSESSMENT PLAN- February 2019

Introduction:

This assessment plan is for the Online Graduate Certificate in Applied Environmental and Sustainability Studies offered in the Department of Geography.

Mission Statement:

The Online Graduate Certificate in Applied Environmental and Sustainability Studies is committed to preparing students to understand sustainability as it pertains to healthy, productive, and equitable quality of life for future generations.

Basic Assessment Approach:

All outcomes will be assessed within a three-year cycle. Please see attached curriculum map and assessment instruments.

Assessment Oversight and Resources:

The certificate director will also serve as the Director of Graduate Studies (DGS) and will act as assessment coordinator. It is the responsibility of the assessment coordinator to monitor the activities of assessment that occur in the certificate program. The assessment coordinator will convene an assessment committee annual for the assessment of student artifacts, and will assemble the results into an annual assessment report, which will be communicated to the faculty of record and delivered to the college. The certificate director will discuss the results of the assessment with the faculty of record on an annual basis.

Program-Level Student Learning Outcomes:

1. Identify environmental challenges that face the world and demonstrate the implications and limitations for future generation through research. (Integrative Knowledge)
2. Differentiate and evaluate the strengths and weaknesses of different methodologies and techniques to address environmental challenges. (Intellectual skills)
3. Demonstrate an understanding of environmental and sustainability studies, and look beyond individual and local interests to identify and evaluate our social and economic responsibilities. (Civic Learning)

Curriculum Map for Online Graduate Certificate in Applied Environmental and Sustainability Studies:

(1=Introduce; 2=Reinforce; 3=Emphasize)

Course	SLO #1: Integrative Knowledge	SLO # 2: Intellectual Skills	SLO # 3: Civic Learning
ENS 601 Environmental and Sustainability Studies: Issues and Ideas	1	1	2
ENS 602 Environment and Sustainability Policy and Governance	2	2	3
ENS 603 Communicating Environmental Knowledge	3	3	3
Applied Environmental and Sustainability Studies Elective	3	3	3

Assessment Measures and Methods:

Direct Methods:

Assignments will be collected in all courses offered in the curriculum. The certificate director will collect the assignments and share with the assessment committee by April 30th every year. The Assessment Coordinator will convene a committee to review the targeted Student Learning Outcomes for that year. Members of the assessment committee will be drawn from the faculty of record.

All outcomes are assessed using rubrics created by the certificate program faculty for the targeted Student Learning Outcome. Students must receive a 3 or 2 on the assignment to consider the learning outcome met.

Data Collection and Review:

Projects and assignments from the courses offered in the curriculum will be collected and assessed annually, according to the three-year assessment cycle. The certificate director will convene an assessment committee consisting of 3-4 faculty members who teach courses in the program; they will

evaluate student learning outcomes as demonstrated by student artifacts, using a rubric created by the committee to assess the content material of all SLO's. The certificate director will be responsible for collating the assessment data and writing the annual assessment report, in collaboration with the assessment committee. The annual report will be shared with the faculty of record, and improvements or adjustments to the curriculum will be discussed annually, after the results of the report have been discussed.

Assessment Cycle and Data Analysis:

Assessment of student learning takes place throughout the certificate program and occurs in all courses. Artifacts of course assessment are maintained by the faculty teaching those courses for one year after the completion of the course. Program-level assessment data are gathered strategically according to the assessment plan. The certificate program will follow a three-year assessment cycle; one or two student learning outcomes will be assessed each year according to this cycle.

Online Graduate Certificate in Applied Environmental and Sustainability Studies 2019-2022 SLO Reporting Cycle				
Outcome Number	Stated Student Learning Outcome	Cycle	Academic Year	Reporting Year
Outcome 1:	Identify environmental challenges that face the world and demonstrate the implications and limitations for future generation through research. (Rubric to be created by certificate program faculty)	Year 1	2019-20	October 31, 2020
Outcome 2:	Differentiate and evaluate the strengths and weaknesses of different methodologies and techniques to address environmental challenges. (Rubric to be created by certificate program faculty)	Year 2	2020-21	October 31, 2021
Outcome 3:	Demonstrate an understanding of environmental and sustainability studies, and look beyond individual and local interests to identify and evaluate our social and economic responsibilities. (Rubric to be created by certificate program faculty)	Year 3	2021-22	October 31, 2022

Teaching Effectiveness:

All instructors will use the university teacher course evaluation (TCE) process to be evaluated by their students each semester. Each instructor will be asked to provide a self-reflection which will include areas of improvement during the biannual faculty merit evaluation report process. The chair will review

the TCE results with instructors and provide feedback to the instructors on an annual basis, and discuss self-reflection on a biannual basis.

Post-Graduate Success:

Our program will look at data provided by the university alumni survey. The certificate program will attempt to stay in contact with former students through an alumni mailing list, to be initiated at the inception of the certificate program. Periodic surveys of alumni will be taken through this venue.



Letters

March 7, 2019

Dear Graduate Council,

I am pleased to express the college's strongest support of the proposed online Graduate Certificate in Applied Environmental and Sustainability Studies in the Department of Geography. The Graduate Certificate in Applied Environmental and Sustainability Studies will provide students with valuable skills in identifying environmental challenges, evaluating methodologies and techniques to address environmental challenges, and the ability to look beyond individual interests to identify our social and economic responsibilities. Students will have the opportunity to develop applied skills such as geographic information systems and mapping, statistics, or communication applications for environmental knowledge, including management, marketing, finance, and economics. The enclosed proposal has been carefully vetted by the college's Education Policy Committee in close consultation with the Dean's office.

The proposed Applied Environmental and Sustainability Studies Graduate Certificate will utilize the strengths of the outstanding faculty in the College of Arts and Sciences and the College of Agriculture, Food and Environment.

An online graduate certificate in Applied Environmental and Sustainability Studies will attract a broad spectrum of interest from students at the University of Kentucky, and workplace professionals who are seeking advanced skills to strengthen professional opportunities. Employers in management and industry, corporate, government, and non-government agencies, regularly look for candidates who can recognize and assess complex environmental and sustainability problems. They are looking for candidates who can communicate issues related to environmental and sustainability policies, management, and solutions.

In terms of additional resources required to offer the graduate certificate, no additional faculty or staff will be needed. The College of Arts and Sciences is committed to covering the administrative stipend for the director of the program until the department is able to generate enough money to cover the cost.

The College of Arts and Sciences fully supports the proposed Graduate Certificate in Applied Environmental and Sustainability Studies in the Department of Geography.

Sincerely,



Mark Lawrence Kornbluh
Dean

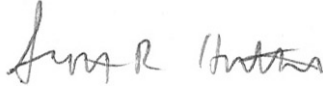
see blue.

March 8, 2019

Dear Graduate Council,

On behalf of the faculty of the College of Arts and Sciences, the Education Policy Committee discussed and approved the proposed online Graduate Certificate in Applied Environmental and Sustainability Studies 8:0:1 on Tuesday, March 5, 2019.

Sincerely,



Scott Hutson
Chair, Education Policy Committee



University of Kentucky
College of Arts and Sciences
*Environmental and Sustainability
Studies Program*

817 Patterson Office Tower
Lexington, KY 40506-0027
P: 859-257-2931
F: 859-257-6277
ens.as.uky.edu

Professor Patricia Ehrkamp
Department of Geography
University of Kentucky
817 Patterson Office Tower
Lexington, KY 40506

Dear Professor Ehrkamp,

February 7, 2019

On February 4, 2019, the Environmental and Sustainability Studies Program Faculty met and voted 9:0 in support of creating an online MA and graduate certificate in Applied Environmental and Sustainability Studies proposed by the Department of Geography that will use the ENS designator.

Yours sincerely,

A handwritten signature in black ink that reads "Betsy A. Beymer-Farris".

Betsy A. Beymer-Farris, PhD
Director, Environmental and Sustainability Studies Program
Assistant Professor, Department of Geography
University of Kentucky
849 Patterson Office Tower
Lexington, Kentucky USA 40506-0027

February 11, 2019



University of Kentucky
Department of Geography
817 Patterson Office Tower
Lexington, KY 40506-0027
P: 859-257-2931
F: 859-257-6277
geography.as.uky.edu

To Whom It May Concern:

This letter confirms that all faculty members in the Department of Geography were consulted via email and voted on February 8, 2019 (19:0:1; with two additional faculty on leave) in support of the creation of an online Graduate Certificate and MA Program in Applied Environmental and Sustainability Studies that will use the ENS designator and be housed in the Department of Geography.

Sincerely,

A handwritten signature in blue ink that reads "Patricia Ehrkamp".

Patricia Ehrkamp
Professor and Chair



University of Kentucky
College of Arts and Sciences

311 Multidisciplinary
Science Building
Lexington, KY 40536-0082
P: 859-257-6115
<https://stat.as.uky.edu>

Dear Patricia,

As Department Chair, this letter confirms that the Statistics faculty were consulted and approved (12-0) the inclusion of STA 570, STA 674, and STA 677 on 12/5/18 as electives in the proposed Online Graduate Certificate in Applied Environmental and Sustainability Studies.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Arnold J. Stromberg', written over a blue diagonal line.

Dr. Arnold J. Stromberg
Professor and Chair

see blue.

An Equal Opportunity University



University of Kentucky
College of Agriculture, Food and Environment

March 7, 2019

To: Mark Kornbluh, Dean, College of Arts and Sciences

From: Nancy Cox, Dean, College of Agriculture, Food and Environment

Subject: Applied Environmental and Sustainability Studies Master's Degree and Graduate Certificate

The College of Agriculture, Food and Environment is pleased to support the proposal for the online Applied Environmental and Sustainability Studies Master's Degree and Graduate Certificate in the Department of Geography. The online interdisciplinary degree program and certificate allows students to complete skills in critical thinking, independent learning, oral and written communication, problem solving, academic knowledge in environmental issues; an understanding of sustainability as it pertains to healthy, productive, and equitable quality of life for future generations.

The Applied Environmental and Sustainability Studies Master's Degree and Graduate Certificate will increase opportunities for employment after graduation. Students will attain skills in environmental studies, sustainability, and policy and governance.

The proposed online Applied Environmental and Sustainability Studies Master's Degree and Graduate Certificate will utilize the strengths of the outstanding faculty in the College of Agriculture, Food and Environment's Department of Landscape Architecture and Natural Resources and Environmental Science interdisciplinary program.

The College of Agriculture, Food and Environment fully supports the proposed online Applied Environmental and Sustainability Studies Master's Degree and Graduate Certificate in the Department of Geography.

Sincerely,

A handwritten signature in cursive script that reads "Nancy M. Cox".

Nancy M. Cox
Dean, University of Kentucky
College of Agriculture, Food
and Environment

see blue.



March 8, 2019

Patricia Ehrkamp, Chair
Department of Geography
College of Arts and Sciences

Dear Patricia,

On February 4, 2019, the members of the Steering Committee (SC) of the interdisciplinary Natural Resources and Environmental Science (NRES) BS program in CAFE were queried via email regarding the inclusion of NRE 556 – Contemporary Geospatial Applications for Land Analysis, taught by Dr. Brian Lee, as an optional course in the online Applied Environmental and Sustainability Studies MA program. On March 8, 2019, the NRES SC members approved the inclusion of this course in the Graduate Certificate of the same name.

Dr. Lee has taught this course for about eight years, with enrollment from students in multiple majors, including Biosystems Engineering, Earth and Environmental Science, Plant and Soil Science, Public Health, Geography, Forestry, and some undergraduate students in NRES, for whom the course serves as an option within the Geospatial Analysis area of concentration. Inclusion of this course in the online Applied Environmental and Sustainability Studies MA could help to build additional online advanced degree options for students across these programs.

Eleven of the 13 NRES SC members responded to both inquiries, all in the affirmative, signaling approval of this course in the ENS MA by the NRES Steering Committee.

Sincerely,

A handwritten signature in blue ink that reads 'Mary A. Arthur'.

Mary A. Arthur, PhD
Professor of Forest Ecology
Department of Forestry and Natural Resources

March 8, 2019

Patricia Ehrkamp
Professor and Chair
Department of Geography
University of Kentucky
817 Patterson Office Tower
Lexington KY 40506-0027

Dear Patricia,

The Landscape Architecture faculty met on Tuesday, February 5, 2019 and voted unanimously to support the inclusion of an online version of LA/NRE 556 as an elective course choice in the proposed Master of Arts in Applied Environmental and Sustainability Studies. Faculty voted on February 26, 2019 to also support the inclusion of LA/NRE 556 as an elective course in the proposed online Graduate Certificate in Applied Environmental and Sustainability Studies.

My Best Regards,



Ned Crankshaw, FASLA
Professor and Chair
Department of Landscape Architecture