Doctor of Philosophy in Environmental Studies Akamai University

Dr Anthony Maranto 23 May 2017

Welcome to the Environmental Studies Program!



On behalf of the faculty, staff, and administration of Akamai University, I would like to welcome you to the Environmental Studies Program. Over the last four decades, the study of environmental issues has grown from a narrow niche in the field of biology, to an overarching and interdisciplinary arena of investigation and application. The study of how humanity interacts with and impacts the natural environment touches every area of human endeavor, from science and technology, to economics and social structures.

Human activities have arguably done more damage to the environment in the last 200 years of recorded history, then throughout all of the rest of our species' existence. Many of the technological and industrial processes that

we rely so heavily upon are built on a framework that is fundamentally unsustainable. Issues related to climatic change, acid deposition, energy production, hazardous waste, population growth, and depletion of non-renewable natural resources has forced humanity to take a closer look at how we interact with our environment. It is for this reason that the demand for researchers, educators, engineers, and policy makers with a firm grounding in the theoretical and practical aspects of environmental studies has reached new heights. The application of sound and socially responsible science to the forward-looking aspects of societal development are perhaps more important today than they have ever been.

The various academic area of focus offered through Environmental Studies can prepare students for careers in environmental research, policy development, industrial compliance, environmental consulting, academics, and many other related areas. The courses of study offered through the Center are not only academically challenging, but also provide a sound framework for career development. I hope that you will join us in exploring opportunities to further your academic pursuits in a field which is both exciting and offers the opportunity devote your skills to the improvement of the human condition..

Sincerely, Anthony R. Maranto, Ph.D. Program Director Environmental Studies

Program Background

Major decisions and actions affecting human and natural environments require professionals who can understand environmental problems in depth, who have the leadership and technical expertise to explore viable solutions, and who can plan and execute responsible actions. Career fields for which this program is appropriate include environmental research and management careers, professional educators, planners, consultants and lobbyists, specialists in sustainable resources and system, environmental regulation, and policy analysis. The program is also appropriate for practitioners in high technology industries and manufacturing, environmental or civil engineering, air and water quality specializations, park management and wildlife conservation, natural disaster specializations, environmental health careers, sustainable agriculture and husbandry, food production specializations, and life and physical science. The study of life science is fundamental to the sustainability of the planet and its life giving systems. The goal of this department is to provide life and physical scientists with the professional tools, academic knowledge, and professional wisdom necessary to provide leadership in the fields of health, education, and environmental science. Our programs will contribute to the growth and development of the fields of natural disaster recovery, park management and wildlife conservation, sustainable agriculture, husbandry, and food production, environmental planning and a number of other essential fields.

Effective policy for environmental sustainability is essential to the maintenance of our planet as well as ecological and human systems. Through its policy and environmental actions, governments, local, national and global, must commit to integration of environmental and socially sustainable development. Sustainable policy should consider issues of environmental and energy planning, law and policy, environmental security, natural resource management, expansion, and population dynamics. The Department of Environmental Policy and Sustainability is committed to investigate these issue in a rigorous and detailed manner.

Environmental technology plays a major role in the sustainability of the environment, as well as its degradation. Technology provides tools for monitoring the health of the environment, in conservation and preservation of natural resources, wildlife management, and the disposal of wastes. It also plays an essential role in development of renewable and alternative energy resources. The goal of the Department of Applied Environmental Technology is to prepare world-class professionals capable of providing leadership within this essential field toward the sustainability of the planet and the betterment of the human condition.

Program Audience

Major decisions and actions affecting human and natural environments required professionals who can understand environmental problems in depth, who have the leadership and technical expertise to explore viable solutions, and who can plan and execute responsible actions. Career fields for which this program is appropriate include:

- Professional educators, planners, consultants and lobbyists
- Specialists in sustainable resources and systems
- Environmental research and environmental management careers
- Environmental regulation and policy analysis
- High tech industries and manufacturing
- Environmental or civil engineers
- Air and water quality specialists
- Park management and wildlife conservation
- Natural disaster specialists
- Environmental health careers
- Sustainable agriculture and husbandry, and food production specialists
- Life and physical scientists

It is assumed that students applying to this program will have a background in the physical or biological sciences and will be familiar with standard theories and practices associated with scientific investigation. It is also assumed that students seeking admissions to this program will have demonstrated professional experience and expertise in environmental studies with some professional or academic experience in either laboratory or field research or applied issues.

Akamai University provides an effective path to the doctorate for mid-career professionals who have completed Master's level study in their major field and considerable career experience at the higher levels of the profession. The primary objective of the program is to provide a means for qualified candidates to produce quality dissertations under the tutorial of a graduate committee of three qualified members of the Akamai University faculty.

ENTRY REQUIREMENTS

As prerequisites for acceptance to the Doctor of Philosophy in Environmental Studies, participants should have completed the equivalent of a recognized Master's degree in an appropriate field of study, have research training, and have several years of meaningful professional experience. Participants are expected to be proficient in English language skills or provide other assurances of effective language support throughout the program. Participants must have access to a computer, appropriate software, email and Internet, and academic library resources.

DEGREE REQUIREMENTS

Participants pursuing the Doctor of Philosophy in Environmental Studies shall complete a seven-phase process (equivalent to 52 credits above the Master's degree in classroom-based doctoral program) including three doctoral research tutorials, a comprehensive review, and a dissertation project.

The doctoral research tutorials are intended to assure the participants have the skills and knowledge to examine the existing scholarly literature, design an effective advanced research study, carry out the project, analyze the data and present the findings in a publishable quality manuscript. The comprehensive review includes written and oral components that permit faculty to determine if the participant has sufficient preparation to proceed to the research phase of the program. The dissertation process includes preparation of a formal dissertation proposal, completion of the dissertation project, and preparation of the manuscript for review by the doctoral committee review. Participants then complete an oral review of dissertation as a conclusion of the degree process.

Dissertation Tutorial I - Basic Research Methods (12 credit equivalency) Dissertation Tutorial II - Literature Review (12 credit equivalency) Dissertation Tutorial III - Research Presentation (12 credit equivalency) Doctoral Comprehensive Review (2 credit equivalency) Dissertation Proposal Process (4 credit equivalency) Conduct of Dissertation Project (8 credit equivalency) Oral Review of Dissertation (2 credit equivalency)

As a minimum degree requirement, doctoral participants must maintain enrollment at Akamai University for at least one and one-half calendar years. Although a maximum period of six years is allowed to complete the program, most doctoral participants are fully capable of finishing their programs within three years. No transfer credit shall be applied toward this doctoral degree, although participants may benefit with an ability to move more swiftly through elements of the program, as a result of the application of learning from prior academic and research training.

At each phase of the doctoral process, in order to progress to the next phase, written approval by the University doctoral committee is required. To remain in good standing, participants must demonstrate effective progress toward achieving quality standards at each phase. Upon successful completion of the seven phase process, participants are awarded the Doctor of Philosophy degree.

DOCTORAL COMMITTEE EXPECTATIONS

Doctoral participants will progress through their programs under the advisement and mentorship of a three-member Doctoral Committee composed of qualified Akamai graduate faculty. The Committee is comprised of a primary, secondary and tertiary mentor, each with a assigned role in directing the doctoral process.

Doctoral participants are expected to work in unity with the same doctoral committee members throughout the entire program. However, participants requiring a change in

committee members must submit a formal petition to the University administration to request the change and such petitions must include a special fee. It must be understood that changing the composition of a doctoral committee may result in a readjustment of expectations, as the committee works to incorporate the ideas and advisement of the new committee member. This may also result in extending the completion date of the degree.

THE DEGREE PROCESS FOR THE RESEARCH DOCTORATE

Step #1: Assignment of Faculty Review Committee

After the participant's admission and registration, as the first step in the program, the University will assign the participant's Graduate Review Committee, including a Chair and one supportive faculty members. Once the Committee Chair has been assigned, the participant shall begin the preliminary activities of the degree program.

Step #2: Study Plan Process

The first activity of the program is the completion of the Study Plan document, which guides the participant and review committee through the degree process. The Study Plan clarifies the specialization that will be pursued, itemizes the subject modules, and clarifies the project activities to be completed as expectations for the degree, and includes a preliminary timeline of completion of each of activity.

Step #3 Conduct of Doctoral Tutorials

The doctoral research tutorials are designed to help the student to expand the quality of their literature search, build the competencies for scholarly argument and establish highlevel research and presentation skills. As an element of each tutorial, students are expected to pursue instructor-directed, as well as self-directed scholarly readings that extend understanding of the theories, principles, and practices in their defined field of study and research.

Students are expected to comprehend the critical features of sound quantitative or qualitative research including subject selection, research design, and statistical analysis in order to develop a sound dissertation or project proposal.

Students will be expected to define an applied problem or theoretical issue to investigate, articulate a rationale for the study of the problem or issue, and formally propose and implement a quantitative or qualitative method of evaluation of the issue or problem.

Students will demonstrate the ability to complete a thorough scholarly literature review on the topic they wish to present. Students are encouraged to select research methodologies that will assure valid and reliable evaluations of the effects of variables on individuals or groups being studied. The intent is to ensure that students have the competency to examine applied or theoretical issues in their fields of study and implement programs of intervention that are cogent, scholarly, and that make an original contribution to the body of information available in their field of study. Each student must clearly address issues related to research with human subjects and live animals.

Students are directed to undertake theoretical and practical discussions with their faculty advisors at Akamai and colleagues at outside institutions involved with the student's field of study. Students submit written plans for University approval relative to these ongoing discussions.

Students are expected to submit scholarly written work (approximately 10,000 words) in each tutorial as directed by the instructor. These papers must reflect high-level information gathering skills, quality written work, with effective academic argument with proper citations and referencing of the literature. The student submits the scholarly paper for instructor evaluation and detailed follow-up discussions. It is expected that work in the doctoral tutorials be directly related to and supportive of the proposed dissertation project that will follow the tutorials.

Students are also expected to demonstrate successful skills in the formal verbal presentation of their work (in increasingly more formal and detailed manner) before their professional colleagues. Presentations may be made at professional conferences, tutorials, workshops or retreats or at scholarly symposia organized by the student via formal written invitation. Students may also make arrangements to speak before college classes or meetings of professional associations, fraternal organizations, non-profit and community membership organizations. Under certain carefully monitored circumstances, students may arrange to make presentations in an innovative manner through videoconference, production and distribution of video- or audiotapes and other electronic, distance and online means. As an alternative, doctoral students may have the paper accepted for publication in the Akamai Journal for Human Advancement. Each research tutorial is summarized by asynchronous conference, permitting detailed oral review and follow-up of the tutorial activities.

RES 641: Doctoral Tutorial #1: Basic Research Methods (12 credits)

The first tutorial instructs the participant in foundational theories, principles, and practices specific to the proposed dissertation research, thus clarifying the underlying principles and justifications that support the proposed concept for research. As a minimum element of this tutorial, participants must complete suitable courses selected from the appropriate Center research offerings. Participants must pass a quality review examination conducted by the graduate committee, and if deemed essential, complete additional research methodology coursework to satisfy preparation requirements.

http://www.akamaiuniversity.us/RES%20641%20Doctoral%20Tutorial%20I-%20Research%20Methodology.pdf

RES 642: Doctoral Tutorial #2: Literature Review (12 credits)

This second research tutorial is designed to guide the participant in conducting a thorough and effective search of the scholarly literature in relation to a project of research. Participants examine the quality of existing scholarly literature in their field of research and participate in a quality review under doctoral Committee guidance. http://www.akamaiuniversity.us/RES%20642%20Doctoral%20Tutorial%20II-%20Literature%20Search.pdf

RES 643: Doctoral Tutorial #3: Research Presentation (12 credits)

The third tutorial is intended to guide the participant in understanding the requirements for effective written argument, referencing and citations of the scholarly literature, and presentation of the findings from research and participate in a quality review under the guidance of the doctoral committee.

http://www.akamaiuniversity.us/RES%20643%20Doctoral%20Tutorial%20III-%20Referencing%20and%20Presentation.pdf

Step #4: Doctoral Comprehensive Review

Upon satisfactory completion of the doctoral research tutorials, the participant will be authorized to schedule the comprehensive review. The senior member of the doctoral committee will direct the written and oral components of the review. The written portion is open book style with selected essay questions requesting creative responses that reach for the higher levels of understanding. Answers should be drawn from the scholarly literature as well as applications within the professional business environment. Proper referencing of the scholarly literature is expected. The oral component of the review shall be completed by conference between the participant and committee members and is intended to encourage an open discussion of the written essay responses. Participants are expected to complete the requirements of the following structured coursework:

EXM 985: Comprehensive Examination (2 credits)

This is the traditional comprehensive examination of doctoral students, conducted by the dissertation committee immediately following completion of the doctoral tutorials and prior to undertaking the dissertation proposal. The examination includes both written and oral components and is confined to the research discipline of the student. http://www.akamaiuniversity.us/EXM980_ComprehensiveExamination.pdf

Step #5: Dissertation Proposal Process

During this phase of the process, participants prepare a formal proposal related to their concept for research. The proposal is completed under the direction of the doctoral committee and prepared according to published University guidelines, which shall be provided to the participant. Participants are expected to complete the requirements of the following structured coursework:

RES 985: Dissertation Proposal (4 credits)

This program element is required of doctoral students to guide them through the formal research proposal process for their dissertations, including the development of the research methodology, data gathering device, and data analysis techniques. <u>http://www.akamaiuniversity.us/RES985_DissertationProposal.pdf</u>

Step # 6: Conduct of Dissertation Project

Following approval of the dissertation proposal, participants will begin their research project. The dissertation may take the form of a traditional research project or it may be a major scholarly project of the type appropriate to the discipline. Whichever approach to the dissertation is chosen, the resulting project must demonstrate mastery of a body of knowledge in the field and represent a meaningful and original contribution to the

betterment of the profession. The dissertation project may be conducted by quantitative, qualitative, or participatory action research. The body of the dissertation manuscript should exceed 75 double spaced, typewritten pages and be structured according to a set of approved research and manuscript guidelines provide by the University. Dissertations that take the form of a scholarly project must follow the guidelines provided by the University for such projects. Participants are expected to complete the requirements of the following structured coursework:

RES 990: Dissertation Project (8 credits)

This program element governs the conduct of the dissertation project. The dissertation is a major undertaking that is a demonstration of mastery of a field of study and an original contribution to the field usually 150 or more pages in length. The project may take any of several forms, depending upon the specialization in the field of study and the expectations of faculty. This may be quantitative or qualitative research, participatory action research, or a major project demonstrating excellence. http://www.akamaiuniversity.us/RES990_DissertationProject_2013.pdf

Step #7: Oral Review of Dissertation

Once the participant has prepared the dissertation manuscript, the senior member of the doctoral committee will schedule the formal review process and act to conduct both the formal physical review of the manuscript and oral review of the dissertation project.

Following receipt of the research manuscript, it usually takes the three member doctoral committee four to six weeks to complete the physical review and prepare questions and commentary for later discussion. The oral review is carried out by personal conference and is designed to allow detailed investigation of the underlying review of the literature, the dissertation methodology, and the mechanics of the project, presentation of the findings, and conclusions and recommendations.

One outcome of the dissertation review process is a set of final expectations directing the participant through the remaining tasks for completing the dissertation manuscript. Once the final manuscript is approved, the participant will submit the formal document to an approved bindery and later arrange for the bound dissertation to be shipped to the University headquarters in Hawaii for permanent archival storage. Upon the participant's completion of the final tasks, and receipt of the needed records and documentation, the University will issue a letter of completion to the participant. It will then make preparation for issuance of the transcript of record and diploma certificate.

EXM 995: Oral Defense of Dissertation (2 credits)

This examination is an oral defense of the doctoral dissertation by the student conducted by the doctoral committee immediately following reading of the dissertation manuscript.

http://www.akamaiuniversity.us/EXM995_OralDefenseofDissertation.pdf

DESCRIPTION OF THE DOCTORAL TUTORIALS

RES 641: Doctoral Research Tutorial I: Research Methodology (12 credits equivalent)

The first research tutorial is designed to guide students in building effectiveness in research design, data gathering and presentation of statistics. Students are expected to prepare a draft of their dissertation research methodology for review by the instructor and at least one outside academic. Should the instructor find gaps and inefficiencies in the proposed research methodology, the student may be directed to complete appropriate course modules in research methodologies or directed readings under the instructor's guidance.

In support of RES 641, it is possible that the Committee Chair will allow or require the doctoral student to complete formal research preparation coursework. Student may complete one support class at University expense and additional support classes at student expense. Possible supportive classes in research preparation are as follows:

- **4** RES 500: Survey of Research Methods (3 credits)
- **4** RES 502: Understanding Research Journal Articles (3 credits)
- **RES 504: Introductory Research Statistics (3 credits)**
- **4** RES 506: Advanced Research Statistics (3 credits)
- **4** RES 508: Qualitative Research (3 credits)
- **4** RES 510: Participatory Action Research (3 credits)
- **4** RES 512: Effective Data Analysis (3 credits)
- **4** RES 520: Social Science Research Methods (3 credits)
- **4** RES 526: Biological Illustration (3 credits)
- **4** RES 527: Biological Modeling (3 credits)
- **4** RES 528: Environmental Science Research Methods (3 credits)
- **4** RES 529: Calculus for Environmental Science (3 credits)

Class descriptions available online at: http://www.akamaiuniversity.us/Research.html#3

RES 642: Doctoral Research Tutorial II: Literature Search (12 credits equivalent)

The second research tutorial is designed to help in expanding the student's literature search, building competence in scholarly argument and high-level verbal and written skills. This tutorial includes an emphasis in formatting the presentation of the literature review, written argument for research. For this tutorial, students submit an annotated bibliography for mentor approval, and progress to complete the readings in preparation for the literature review of the dissertation. Students prepare a draft of their literature review for evaluation by the instructor and at least one outside academic. Students finalize the literature review for approval and publication in the Akamai Journal for Human Advancement.

In support of RES 642, it is possible that the Committee Chair will allow or require the doctoral student to complete formal academic coursework to strengthen their scholarly literature background. <u>Student may complete one support class at University expense</u>

and additional support classes at student expense. Possible supportive classes in the research concentrations are as follows:

Research Concentrations

The research concentration of the student will guide the focus in the RES 642 tutorial. Research concentrations in Environmental Science, include the following:

- **4** Environmental and Life Science
- **4** Environmental Policy and Sustainability
- Applied Environmental Technology

Environmental and Life Science

This research concentration includes focus in applied environmental science, environmental biology, and environmental chemistry, environmental geology, environmental health, earth science, global ecology, sustainable agriculture, life science, natural history, environmental health, conservation theory, and interdisciplinary environmental studies.

ELS 512: Global Ecology (3 credits) ELS 515: Earth Science (3 credits) ELS 518: Environmental Geology (3 credits) ELS 530: Agricultural Studies (3 credits) ELS 538: The Ecology of World Hunger (3 credits) ELS 541: Principals and Theories of Environmental Biology (6 credits) ELS 545: Marine Biology (3 credits) ELS 546: Processes in Coastal and Estuarine Zones (2 credits) ELS 552: Environmental Chemistry (3 credits) ELS 554: Ecotoxicology (3 credits) ELS 562: Life Sciences and Environmental Health (6 credits) ELS 564: Environmental Health and Protection (3 credits) ELS 565: Case Studies in Environmental Public Health (2 credits) ELS 569: Emerging Diseases and the Environment (3 credits) ELS 590: Ecology and Biodiversity (3 credits) EPS 503: Global Environmental Issues and Solution (6 credits) EPS 511: Applied Ecology and Conservation (3 credits) EPS 514: Conservation Philosophy and Theory (6 credits) EPS 522: Effective Environmental Stewardship (2 credits) EPS 540: Human Population and the Environment (3 credits) EPS 579: Marine and Coastal Policy (2 credits) AET 552: Community Ecology (2 credits) AET 560: Natural Processes and Environmental Consequences (3 credits) AET 562: Environmental Toxicology and Pollution Pathways (3 credits)

Class descriptions available online at end of document: <u>http://www.akamaiuniversity.us/EnvironmentalStudies_MS.pdf</u>

Environmental Policy and Sustainability

This research concentration includes focus in sustainable development, natural resources management, environmental planning, environmental law and policy, environmental security studies, energy policy and analysis, population studies and dynamics, applied environmental policy, environmental and natural resource economics, and interdisciplinary policy studies.

EPS 521: Sustainable Development and Management (3 credits) EPS 522: Effective Environmental Stewardship (2 credits) EPS 524: Environmental Planning and Management (4 credits) EPS 525: Natural Resources Management (3 credits) EPS 528: Energy Policy and Sustainability (3 credits) EPS 530: Environmental and Natural Resource Economics (3 credits) EPS 540: Human Population and the Environment (3 credits) EPS 540: Human Population and the Environment (3 credits) EPS 560: Environmental Security and Scarcity (3 credits) EPS 571: Environmental Law and Policy (3 credits) EPS 576: International Environmental Policy and Regulation (3 credits) ELS 538: The Ecology of World Hunger (3 credits) AET 520: Ecological Design and Engineering (3 credits) AET 530: Studies in Solid Waste Management (2 credits) AET 573: Environmental Risk Assessment and Management (3 credits) AET 544: Alternative and Renewable Energy Applications (4 credits)

Applied Environmental Technology

This research concentration includes focus in environmental remediation technology, bioremediation, emergency planning and recovery, pollution prevention, renewable and alternative energy technologies, and interdisciplinary studies in environmental technology.

AET 503: Interdisciplinary Studies in Environmental Technology (3 credits)

AET 521: Pollution Prevention (3 credits)

AET 523: Environmental Pollution, Control, and Remediation (3 credits)

AET 525: Bioremediation (3 credits)

AET 527: Emergency Planning and Recovery (3 credits)

AET 544: Alternative and Renewable Energy Applications (3 credits)

AET 562: Environmental Toxicology and Pollution Pathways (3 credits)

AET 565: Acid Deposition: Its Consequences and Control (3 credits)

AET 573: Environmental Risk Assessment and Management (3 credits)

ELS 564: Environmental Health and Protection (3 credits)

EPS 522: Effective Environmental Stewardship (2 credits)

Class descriptions available online at end of document: http://www.akamaiuniversity.us/EnvironmentalStudies_MS.pdf

RES643: Doctoral Research Tutorial III: Referencing and Presentation (12 credits equiv.)

The third research tutorial is designed to help students construct proper citations and referencing of the literature and effectiveness in describing the findings and stating the conclusions and recommendations from their study. Students complete a report discussing the methods to be used for citation and referencing of the literature, explaining guidelines for effective presentation of findings, conclusions and recommendations. Under the guidance of the Committee Chair, students select an effective publication manual and other resources in support of an effective dissertation. Examples of effective publication and style manuals include:

- APA Sample Bibliographic Citations
 <u>http://www.apastyle.org/learn/quick-guide-on-references.aspx</u>

 APA Style Resources
 - http://www.psywww.com/resource/apacrib.htm
- APA Writer's Workshop Online <u>http://www.cws.illinois.edu/workshop/writers/citation/apa/</u>
- Chicago Style http://www.wisc.edu/writing/Handbook/DocChicago.html
- Citation Guides for Government Publications <u>http://www.library.unt.edu/help/tutorials/government-documents/citing-government-publications-general-guidelines</u>
- Citation for Electronic Sources <u>http://www.ipl.org/div/farq/netciteFARQ.html</u>
- Columbia Guide to Online Style <u>http://www.xmarks.com/s/site/www.columbia.edu/cu/cup/cgos/idx_basic.html</u>
- APA Style Help <u>http://www.apa.org/journals/webref.html</u>
- ASA Sociology Style Formatting <u>http://lib.trinity.edu/research/citing/ASA_Style_Citations_4.pdf</u>
- Guide for Writing Research Papers Based On MLA Documentation <u>http://www.ccc.commet.edu/library/mla/index.shtml</u>
- How to Write a Bibliography Examples in MLA Style <u>http://www.aresearchguide.com/12biblio.html</u>
- Academic Integrity and Documentation <u>https://www.umuc.edu/writingcenter/onlineguide/chapter5-20.cfm</u>
- Online: Chicago Style Quick Guide <u>http://libguides.wwu.edu/content.php?pid=123723&sid=1063051</u>
- Online: MLA Style Quick Links <u>http://www.mla.org/</u>
- Writing an Research Paper_ http://www.ruf.rice.edu/~bioslabs/tools/report/reportform.html
- Turabian Quick Guide for References <u>http://www.press.uchicago.edu/books/turabian/turabian_citationguide.html</u>
- Writers' Workshop Online Writing Guide: Grammar Handbook <u>http://www.cws.illinois.edu/workshop/writers/</u>