ECOSYSTEM Description

Instructions: There are four parts to the ECOSYSTEM/New Program Template: Ecosystem Description, Program Description, Planning and Resources, and Modeling Data (see four tabs below). The first tab requires narrative information about the ecosystem.The next three tabs support information for each new program: first, the narrative information about the new program, second the start-up needs and resources over years, and third the numerical information to input into the model for predictive modeling. Some of the same information is required in multiple tabs. Please complete all four tabs. Each program should have its own document, but many programs may share the first tab/ecosystem information.

A. ECOSYSTEM Name: Sustainability and the Environment

B. Brief, but clear statement defining the ecosystem: A collection of academic programs, projects, institutions, and experiences that equip our graduates to account for the impact of their professional practices upon the ecosystems and natural resources that foster our societies.

C. ECOSYSTEM MAKEUP *(internal)*

		Description
1	What capabilities and expertise in the University support this ecosystem?	The University already has a number of degree programs in this area, and faculty who research and teach in these fields. PhilaU has been a first-mover and innovator in the field of sustainability education.
2	What existing degree programs make up the ecosystem?	Environmental Sustainability, Environmental and Conservation Biology, Masters in Sustainable Design, Landscape Architecture, Historic Preservation, Masters in GeoDesign
3	What existing minors, concentrations, certificates, etc. contribute to this ecosystem?	Minor in Environmental Sustainability, Graduate Certification in Sustainable Practices
4	What are new areas that could be developed within this ecosystem?	M. Arch, SAIM certificate, Sustainable Urban Planning, Environmental Policy, Environmental Health, Environmental Education
5	Does this ecosystem involve partnerships with other institutions? With whom?	**We need ideas here?**

D. ECOSYSTEM CORE VALUES, PRINCIPLES AND CONCEPTS *(internal - see Media/Communication/Narrative ppt from June 12 for example).*

1	Describe the values on which the programs and offerings in the ecosystem are based.	In the 21st century, sustainability thinking will be an essential skill and mental habit for innovative and competitive professionals, as well as a key civic and ethical responsibility.
2	Describe the principles or approaches that are common to the programs and offerings of the ecosystem.	Systems thinking, life cycle assessment, cradle to cradle design, resilience, biodiversity, the precautionary principle, intergenerational equity, triple bottom line, interdisciplinarity
3	Describe the concepts that ground the program development in the ecosystem.	Sustainability thinking requires holistic and interdisciplinary approaches, and is best mastered through experiential learning. Program development in this field should connect with our existing offerings and enhance them with complementary courses and initiatives.

E. ECOSYSTEM MULTI-MODALITY *(internal)*

1	Describe how the ecosystem has multi-modal offerings. What courses, sequences, etc. are shared?	New undergraduate programs could share core courses from Environmental Sustainability and Environmental and Conservation Biology. Graduate programs in architecture and design could use courses from MSSD and SAIM.

F. ECOSYSTEM: Resources *(internal)*

1	Does the ecosystem leverage common and/or existing resources (equipment, technology, space)?	The material resources for these programs are fairly minimal--software suites and classroom spaces are the main requirements. On-site learning will often be off-campus.
2	What are the gaps in resources?	
3	Describe the assets of the current personnel to support the proposal (Leadership, faculty, administrative support).	The existing programs in the ecosystem already have directors and faculty, and are supported by the existing academic units, in terms of leadership and administrative support.
4	Personnel gaps?	New programs would require program directors and new faculty hires.

G. ECOSYSTEM: Differentiation & Marketability *(mostly external)*

1	How does the ecosystem differentiate the university?	We have an opportunity to identify ourselves as a center for comprehensive sustainability and environmental education, with a professional focus. Very few universities offer such a wide portfolio of "green" programs, and augmenting those offerings would further boost our leading status in this area.
2	On local, national, and international levels?	We are in range of assuming a role of national leadership.
3	What is the competition in this area?	Arizona State University, Evergreen State College, Northland College, College of the Atlantic, Stony Brook University
4	Describe the market rationale. To whom is the ecosystem desirable and why? *(Internal/External/Profession)*	Sustainability and environmental awareness are increasingly central concerns to most areas of social and business activity. Virtually every field will be devoting more attention and expertise to questions of energy efficiency, climate change, life cycle analysis, waste disposal, water resources and other environmental and natural resource questions. The market demand for expertise in these areas (both technical and managerial) can only grow in the years to come. We have an opportunity to lead the field of sustainability education to produce these new experts.
5	Is there future job growth in the related fields?	Yes. According to a 2011 Brookings Institute report, "clean economy" jobs grew at a rate of 3.4% from 2003 to 2010, despite the recession, with much faster growth in sectors such as wind energy, solar PV and smart grid technologies. The Philadelphia region is number 5 on the list of the top 100 metro areas for the clean economy, with 54,325 jobs (2% of the region's total jobs--the 3rd largest proportion in the top 10). The Bureau of Labor Statistics listed Pennsylvania as the state with the 8th highest percentage of green jobs (3.3% of all jobs in 2010).

New Program Description

Instructions: Complete this tab (Program Description), the Planning and Resources tab and Modeling Data tab for each new program.

A. New Program Name: Environmental Health

B. Brief, but clear statement defining the program and its outcomes: The B.S. in Environmental Health prepares students to measure, prevent and respond to threats to human and ecosystem health caused by environmental factors.

C. Launch Date:

	D. Courses and Curriculum	**Description**
1	What is new (courses, credits, delivery)?	This program will require approximately 8 new courses
2	What are the adjustments to existing programs and curricula (adding courses, changing credits, subtracting courses or combining things)?	This program will combine courses from existing programs (biology, chemistry, engineering, environmental and conservation biology, environmental sustainability, public health, disaster medicine and management) and it will add some new courses to complete the curriculum.
3	Delivery/Instructional method (full-time, part-time, day, evening, weekend, summer, online, hybrid)?	This would be offered initially as a full-time day program.
4	How does it engage and integrate **Nexus Learning**? Or innovative pedagogies?	The curriculum will offer numerous opportunities for problem-based learning and hands-on experiential learning.
5	What is the outcome (is this a degree, minor, certificate, bridge program, etc.)?	The outcome is a Bachelor of Science degree.
6	Does this program involve partnerships with other institutions? With whom?	
7	How does this program incorporate **smart growth strategies**? Does it reduce sequencing and "bottle necks" in the curriculum? Does it use innovative pedagogies that maximize section sizes? Does it offer accelerated, year-round degree options? (see smart growth document)	By including existing science and sustainability courses, this program will help fill underused capacity in those courses.

E. Students and Enrollments

1	Describe the student market (Undergrad, graduate, transfer, domestic, international).	The market for this program initially will be traditional undergraduate students.
2	How does the program support student choice?	This major provides an additional choice for students who find themselves considering studies in the health professions, environmental sustainability, public health, chemistry, biology, environmental and conservation biology, and environmental engineering.
3	How will the enhanced/new program accommodate transfer students?	The program will accept a wide variety of transfer courses in science, math and general education, and it will be built with a generous number of free electives to allow for easier transferring from other institutions and from other majors.

F. Resources: Existing and Needed
(answer the following if they are different from resources listed for

1	Does the program leverage common and/or existing resources (equipment, technology, space)?	This program would draw upon our existing science resources and environmental testing facilities.
2	What are the gaps in resources?	Additional or upgraded science labs may be required.
3	Describe the assets of the current personnel to support the proposal (Leadership, faculty, administrative support).	This program would be supported by existing CSHLA leadership and administrative support resources, and faculty for some of the courses are already on staff.
4	Personnel gaps?	The program would require a director and at least one new faculty member.

G. Differentiation & Marketability

1	How does the new program differentiate on program, college, and university levels?	This program will be designed to be more professionally-focused and applied than some of the traditional science majors, and it will be an appealing mixture of science and policy studies.
2	On local, national, and international levels?	This program would augment our portfolio of sustainability and environment-related programs, raising our profile nationally as a leader in green education.
3	What is the competition?	There are approximately 30 EHAC and AEHAP-accredited programs in this field nationwide. The only other programs in the Northeast are at West Chester University and the University of Massachussets, Lowell.
4	Describe the market rationale. To whom is the offering desirable and why?	Given the projected job growth in this field and the lack of accredited programs in the northeastern United States, graduates from this program should find job opportunities in the area.
5	Is there future job growth in the field?	According to the Bureau of Labor Statistics, jobs for environmental scientists, including health experts, should grow 19% between 2010 and 2020, outstripping the projected overall job growth rate of 14% during that period.

Planning and Resources

2012-13

Instructions: This timetable is designed to illustrate 1. the program start-up needs, 2. the initial resources needed for the program's launch, and 3. the years following the launch as the program scales up. If the program launches in 2014-2015, fill in the chart starting in the 2013-2014 column with start-up needs.

Program Name		**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**
A. Courses and Curriculum	# New Courses	2	2	2	2
	# Existing Courses	32			
	Total # of Courses	40			
	Total # Credits	124			
B. Enrollment	# of students	0	0	4	8
C. Personnel	Program Leadership				
	# Existing				
	# New	1			
	Faculty				
	# Existing				
	# New	0	1	0	0
	Administrative Support				
	# Existing				
	# New				
D. Resources	Equipment and Technology				
	Existing				
	New				
	Space Requirements				
	Existing				
	New				
	Other Significant Resources (Consultants, travel needs, etc.)				

NOTE: Lloyd Russow's model will also provide information about personnel and resource needs based on numerical data; however, please give an estimate of resources required.

Modeling Data

Instructions: When thinking about course credit for the new program, consider the following: how many credits does a single student consume by subject (course prefix)? By instructional method? In existing courses? In new courses? Take note of comments embedded in the tables indicated by the red triangle.

Student Credit Hours Table

Program Name			
Existing Course Name	**# Credit Hours**	**Course Prefix & #**	**Instructional Method**
Biostatistics			
Intro to Public Health			
Epidemiology			
Anatomy and Physiology I and II			
Organic Chemistry I and II			
Biology II			
Chemistry II			
Microbiology			

New Course Name	**# Credit Hours**	**Course Prefix & #**	**Instructional Method**	**Target Section Size**
Intro to Environmental Health				
Air Quality				
Solid and Hazardous Waste Management				
Environmental Toxicology				
Field Sampling and Analysis				
Industrial Hygiene				

	Total # Credit Hours
College Studies Credits	49
Elective Credits	12

Projected Enrollment: 40

New Program Description

Instructions: Complete this tab (Program Description), the Planning and Resources tab and Modeling Data tab for each new program.

A. New Program Name: Environmental Policy

B. Brief, but clear statement defining the program and its outcomes: The B.S. in Environmental Policy prepares students to combine their knowledge of natural science and ecosystems with political and economic understanding in order to make decisions and policies that balance the needs of human societies with the natural environments that support us.

C. Launch Date:

	D. Courses and Curriculum	**Description**
1	What is new (courses, credits, delivery)?	This program will require approximately 8 new courses.
2	What are the adjustments to existing programs and curricula (adding courses, changing credits, subtracting courses or combining things)?	This program will combine courses from existing programs (biology, chemistry, environmental and conservation biology, environmental sustainability, public health, and law and society) and it will add some new courses to complete the curriculum.
3	Delivery/Instructional method (full-time, part-time, day, evening, weekend, summer, online, hybrid)?	This would be offered initially as a full-time day program.
4	How does it engage and integrate **Nexus Learning**? Or innovative pedagogies?	The curriculum will offer numerous opportunities for problem-based learning and hands-on experiential learning.
5	What is the outcome (is this a degree, minor, certificate, bridge program, etc.)?	The outcome is a Bachelor of Science degree.
6	Does this program involve partnerships with other institutions? With whom?	The EPA is a potential partner for this program, in terms of internships and adjunct faculty.
7	How does this program incorporiate **smart growth strategies**? Does it reduce sequencing and "bottle necks" in the curriculum? Does it use innovative pedagogies that maximize section sizes? Does it offer accelerated, year-round degree options? (see smart growth document)	By including existing science, sustainability, and law courses, this program will help fill unused capacity in those courses.

	E. Students and Enrollments	
1	Describe the student market (Undergrad, graduate, transfer, domestic, international).	The market for this program initially will be traditional undergraduate students.
2	How does the program support student choice?	This major provides an additional choice for students who find themselves considering studies in the health professions, environmental sustainability, public health, chemistry, biology, environmental and conservation biology, and environmental engineering.
3	How will the enhanced/new program accommodate transfer students?	The program will accept a wide variety of transfer courses in science, math and general education, and it will be built with a generous number of free electives to allow for easier transferring from other institutions and from other majors.

F. Resources: Existing and Needed
(answer the following if they are different from resources listed for

1	Does the program leverage common and/or existing resources (equipment, technology, space)?	
2	What are the gaps in resources?	No special physical resources are required for this program.
3	Describe the assets of the current personnel to support the proposal (Leadership, faculty, administrative support).	This program would be supported by existing CSHLA leadership and administrative support resources, and faculty for some of the courses are already on staff.
4	Personnel gaps?	The program would require a director and at least one new faculty member.

G. Differentiation & Marketability

1	How does the new program differentiate on program, college, and university levels?	This program is at the intersection of Law and Society and Environmental Sustainability. It will strengthen the University's liberal arts offerings while staying true to our mission of professional education.
2	On local, national, and international levels?	There appear to be only a handful of similar majors across the U.S., so we would be differentiated on the national level.
3	What is the competition?	Drake University, Fordham University, Williams College, Washington University in St. Louis
4	Describe the market rationale. To whom is the offering desirable and why?	The market rationale for this major is not especially compelling, except internally. This program would offer an additonal choice in the sustainability ecosystem with minimal investment. PhilaU students may choose it as a hybrid of law and sustainability studies, and as an avenue to graduate study.
5	Is there future job growth in the field?	No data have been found on this so far.

Planning and Resources

2012-13

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Student Credit Hours Table

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Existing Course Name	**# Credit Hours**	**Course Prefix & #**	**Instructional Method**
LAW-105: American Government			
LAW-205: Philadelphia Law and Politics			
LAW-300: International Law			
ECON-205: Microeconomics			
ECON-206: Macroeconomics			
SUST-120: Sustainable Food Chains			
SUST-200: Energy Systems and Politics			
SUST-202: Economics of Sustainability			
SUST-204: Sust. Planning and Land Use			
SUST-400: Sust. in the Non-West. World			

New Course Name	**# Credit Hours**	**Course Prefix & #**	**Instructional Method**	**Target Section Size**
Global Environmental Politics				
Environ. Analysis & Decision-Making				

	Total # Credit Hours
College Studies Credits	49
Elective Credits	12

Projected Enrollment: 30