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Sustainability Collaboratory (co-funded) [Project Proposal]

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PSU Integrated Cluster (IC) Project Funding Process & Proposal Form

Project Proposal Submittal Process: All IC projects requesting funding will require the completion and submittal of three (3) forms:

- Project Proposal Form – project scope & outcomes** (*included in this document*)
- Project Guidelines Form – reflective document outlining desirable IC project attributes**
- Project Budget Form – Excel spreadsheet to facilitate budget planning**

Instructions for Submitting Project Proposals:

- ✓ Download the 3 forms to your computer
- ✓ Complete the forms and save them; including the title of your project in the file name
- ✓ Forward the 3 files via email to the IC Project Manager, Ross Humer
rhumer@plymouth.edu
- ✓ Project Proposal will be logged & forwarded to the appropriate IC Guide Team

If not reviewed in advance of the submission, it is important to discuss the Project with the IC Guides to review, refine, and rework (if necessary) to obtain funding approval.

Project Funding Review Process: All proposed projects will be reviewed by the Cluster Guide team. Depending on the level of funding amounts being requested, the proposal request will follow the process outlined as follows:

- **Level 1:** Any project with a proposed budget of less than or equal to \$5,000 can be approved by the Cluster without additional review
- **Level 2:** Any project with a proposed budget of \$5,000 but less than \$10,000 can be approved by the IC Project Review Team, which is made up of representatives from each of the 7 Clusters (*see release time exception directly below*)
- **Level 2:** Any project with a proposed budget of \$10,000 or greater **or** requires faculty release time, must be first endorsed by the IC Project Review Team and submitted to the Academic Deans for review and approval

The project funding approvals are limited to one academic year; projects which require additional funding in subsequent years will need to be resubmitted annually for review and approval.

Deliverables: At the conclusion of the academic year, a deliverable to the Integrated Cluster Proposal Review Team and Academic Deans is required in order for the project director/coordinator, artist, or author and collaborator(s) to be eligible for future funding. This reporting requirement may be met by numerous means which will be identified as this process matures. It is anticipated that awardees will present their works before a wide public gathering to be scheduled during the upcoming Academic Year.

Instructions for the PSU Integrated Cluster Project Proposal Form: Please complete all of the elements of the following form in the spaces provided before saving and then submitting the document.

PSU Integrated Cluster Project Proposal Form

Title: The Sustainability Collaboratory (collaborative laboratory)

Project Leadership: Dr. Brian Eisenhauer (Director, Office of Environmental Sustainability), and Steve Whitman

Project Description: PSU has made a name for itself with large-scale sustainability projects and curriculum innovations. With undergraduate and graduate programs in Environmental Science and Policy, undergraduate programs in Environmental Planning and Environmental Biology, and a popular Sustainability Minor there is a need for students from all disciplines to understand smaller scale environmental design features that are reasonable and within reach of the average family household. This is relevant to all students at PSU, including the clear majority who hope to own a home someday and will be making these decisions in their own lives. The need to incorporate sustainability principles across disciplines and clusters is great, and the Sustainability Collaboratory will enable students from programs across campus to learn important applicable skills and engage in meaningful community outreach and service.

This project provides a location for inter-disciplinary collaborations and a resource for classes from many programs. Many courses from different disciplines can use the facility to understand how buildings work, track energy use and performance, conduct cost benefit analysis, practice project development skills, and experiment with implementation actions while collaborating with on campus and off campus partners. We feel this exciting project will also attract other funding opportunities over time due to its visibility and the opportunity for demonstration projects. In addition, the project engages students in active learning through improvements on our campus that addresses both sustainability goals and necessary maintenance and upgrades.

Project Goals and Outcomes:

1. **Project Goals** – Briefly identify and describe the objectives of this project:

The objective of the project is to use the new OES office space across from Hyde Hall as campus resource by serving as a living, learning laboratory to demonstrate sustainability and “green living” to PSU students and community members, both inside and outside of class settings.

The mission of the Sustainability Collaboratory is to demonstrate environmentally sustainable technology, sustainable means of living, and the techniques used to evaluate sustainability projects in a residential setting, to provide hands-on experiential learning opportunities to Plymouth State University students and the surrounding region, to collect and disseminate information about sustainability, and to help others live in more sustainable ways. To achieve its mission the Sustainability Collaboratory will:

- Provide a facility that can be used by programs from across campus as a living learning laboratory for sustainability education

- Provide a location for workshops, seminars, and demonstrations of how the average single family home can be retrofitted locally for sustainable design
- Create a living learning laboratory for students and faculty to conduct experiments with sustainable design, financial analyses, alternative energy sources, and other technologies
- Provide a location for faculty, staff, and students to “educate” the public by providing tours of the facility, monitoring its energy use, and researching the impacts of completed projects
- Create a “home” and enhance sense of identity for PSU students involved in sustainability related programs

The project outcomes include:

- The creation of innovative learning environments for students, including “hands on” opportunities to use experiential learning to contribute to the improvement our campus infrastructure improvement
- Educating students from across campus about decisions they will make in the future as the “next generation of homeowners”
- The projects completed will result in lowered energy and operations costs annually as well and campus improvements
- A facility that can be used as a resource for many sustainability cluster projects
- A “home” for TESD students, faculty, and staff

Many of the projects that will be initiated and funded by this project will address existing maintenance needs at the building that would otherwise impact the PSU Budget.

2. Student Learning Outcomes – Outline the expected student learning outcomes

- Explore the concept of sustainability and become familiar with examples of how the concept is being implemented in different fields and apply that knowledge to a project
- Learn to apply critical thinking perspectives that are used to examine and understand our perceptions, opinions, and claims about sustainability and sustainable technologies
- Develop the skill to conduct cost benefit analysis of sustainability projects
- Understand the basic principles of energy use, particularly as applied in a residential setting
- Develop knowledge of the major environmental impacts of structures
- Learn concepts and tools used to lessen the environmental impacts of structures
- Locally available natural building materials and applicable techniques for the northeast climate for thermal insulation, structure, thermal mass, aesthetics and protective uses
- Climatic, geological and ecological considerations for different building methods and materials
- The differences and overlap between “green” and “natural” building methods, materials, techniques, aesthetics and functional applications
- Hands-on experience in several techniques and materials
- Problem based learning and the design process
- Experience in design and planning
- *Make every effort to help students use and apply these skills and this knowledge in students’ own lives*

Project Synopsis (objectives & outcomes): 30 word maximum; capture the project objectives and most significant outcomes for the project. This synopsis should be written for potential use in our internal communications and external Marketing/PR activities.

Project Synopsis (objectives & outcomes): The objective is to create a campus resource that serves as a living, learning laboratory to demonstrate sustainable technology and the techniques used to evaluate it in a residential setting.

Project Documents/Pictures/Videos On-line Archive: post the link to on-line project resources captured in this project, especially, pictures, videos, “Quotable Quotes” and other project documents.

Project Documents/Pictures/Videos On-line Archive: We will establish the archive at <https://campus.plymouth.edu/sustainability/ecohouse/> and look forward to providing examples of cluster based learning experiences at PSU.

Rationale and Impact:

Considering the questions below, please write your project rationale and impact statement.

Include how this project will further the Mission and Vision of PSU with respect to 1) fostering collaboration across disciplines; 2) addressing a relevant societal issue, and 3) establishing relationships with community partners, external institutions, companies, non-profits, schools, government agencies, etc. and 4). Making an impact

How does this proposed project advance the Integrated Cluster mission and vision? How does this project facilitate high impact teaching and learning, cross disciplinary collaboration, student engagement and partnership involvement, and real world problem exploration? What are the anticipated impacts of this project?

Is this project an extension of work already in progress, or an entirely new endeavor? Does it integrate with areas that team leaders are already teaching or is it an opportunity to delve into unfamiliar content or a bit of both?

Project Rationale and Impact Statement:

The project focuses on sustainability science, an inherently interdisciplinary effort that will involve relationships across the university and with multiple community partners who offer expertise, and possibly funding, in support of projects in which they are involved. By engaging students and partners in problem-based learning used to address issues of sustainability the project provides a strong example of the benefits of cluster projects and the applicability of interdisciplinary thinking to students lives.

1) Fostering collaboration across disciplines:

- The Sustainability Collaboratory is, as the name indicates, a project designed to foster collaboration through experiential, problem based learning. Sustainability is identified in a cluster title, and exists as an interdisciplinary academic program. The project proposed will provide students and faculty from across campus with the opportunity to engage in problem based learning addressing issues that inherently involve disciplines such as business, environmental science, social science, the humanities, and more. Creating it will be catalyst for these types of projects. Several classes have already expressed a desire to use the facility including Business and the Environment, Sustainability in Residences, The Sustainability Capstone course, and more, and collaborations across these groups will be developed.
- 2) Addressing a relevant societal issue:
The project proposed addresses many environmental concerns including climate change, which is a stated goal of Plymouth State University. The work proposed will also lessen energy expenses at the building for PSU into the future.
 - 3) Establishing relationships with community partners, external institutions, companies, non-profits, schools, government agencies, etc.:
The Sustainability Collaboratory is, as the name indicates, a place designed to foster collaboration through experiential, problem based learning and many of the efforts would involve partners. The project would involve partnerships with Lakes Region Community College Energy Program, the Plymouth Area Renewable Energy Initiative, The New Hampshire Electric Cooperative, and many others who have already expressed interest in the project. Partnerships with private companies are also highly probable, as green infrastructure and renewable energy are marketable products in a growing sector of the economy.
 - 4) Making an impact:
The impacts of the Sustainability Collaboratory are many, and include 1) providing an example of cluster projects and work, 2) directly affecting student learning experiences in many disciplines, 3) providing a student engaged means to address deferred maintenance on campus using cluster funds, 4) creating a project that brings together different disciplines and engages external partners, 5) improving the performance of a campus building, and 6) provides an example of PSU's innovative approach to engaging students in our efforts to address climate change directly through their learning experiences.
 - 5) How does this proposed project advance the Integrated Cluster mission and vision?
The project provides an example of the integrated cluster mission and vision in action that is highly visible and engages students from many disciplines. The work can provide a common project to unite intra and inter cluster activities, and can be an example of the way cluster projects can be inclusively organized to bring benefits to many university constituencies.
 - 6) How does this project facilitate high impact teaching and learning, cross disciplinary collaboration, student engagement and partnership involvement, and real world problem exploration?
 - The Sustainability Collaboratory is, as the name indicates, a project designed to foster collaboration through experiential, problem based learning to facilitate high impact learning. Sustainability is identified in a cluster title, and exists as an interdisciplinary field and academic program because it addresses "real-world" problems that affect all students'

lives. The project proposed will provide students and faculty from across campus with the opportunity to engage in problem based learning addressing issues that inherently involve diverse disciplines such as business, environmental science, social science, the humanities, and more in combined efforts. Creating the Sustainability Collaboratory will be catalyst for the types of partnerships and projects that create high impact learning opportunities which build on cross disciplinary collaboration and partnerships to address the “real world” problem of sustainability in residences. Several classes have already expressed a desire to use the facility including Business and the Environment, Sustainability in Residences, The Sustainability Capstone course, and more.

7) What are the anticipated impacts of this project?

- Improved experiential learning opportunities across the curriculum for students
- Example of cluster projects facilitating problem based learning
- Advancement of the cluster mission at PSU
- Growth of external partnerships
- Expansion of cross-disciplinary collaboration
- Improved campus facilities
- Lower operating costs
- The generation of a sense of community and ownership among students engaged in the projects
- Creation of high impact learning opportunities for students, staff, and community members

8) Is this project an extension of work already in progress, or an entirely new endeavor? Does it integrate with areas that team leaders are already teaching or is it an opportunity to delve into unfamiliar content or a bit of both?

- The project is a new endeavor that builds upon previous successes collaborating across different disciplines, with PSU Physical Plant, and with external partners in several campus settings including EcoHouse, AllWell North, and others. The work has been incorporated into many classes across the curriculum, including as a “field trip” location to introduce students to sustainability.
- Several classes have already expressed a desire to use the facility including Business and the Environment, Sustainability in Residences, The Sustainability Capstone course, and more.
- The information in sustainability science is rapidly advancing, and an increasing number of disciplines at PSU have faculty conducting professional work on the topic. Developing the facility proposed will enhance the already existing content available to students, while also fostering new opportunities and collaborations.

Project Team

PSU Project Participants (essential core team participants including faculty and staff)

Name	Position/ Title	Project Role	Discipline/ Specialty	Email
Dr. Brian Eisenhauer	Director, Office of Environmental Sustainability	Co-Director	Sustainability Science / Social Science	bweisenhauer@plymouth.edu
Steven Whitman	Sustainability Programs Coordinator and Teaching Lecturer	Co-Director	Environmental Planning	steve@resilienceplanning.net
Dr. Amy Villamagna	Assistant Professor, Environmental Science and Policy	Collaborator/Participant	Environmental Science	amvillamagna@plymouth.edu
Dr. Brad Allen	Professor, College of Business	Collaborator/Participant	Business / Marketing	callen@plymouth.edu

Non-PSU Project Participants (stakeholders; partners; academic institution; etc.)

Name	Organization	Project Role	Discipline/ Specialty	Email
Sandra Jones	Plymouth Area Renewable Energy Initiative	Cooperator / partner	Renewable energy systems	sandra@plymouthenergy.org
Andrew Duncan	Lakes Region Community College Energy	Cooperator / partner	Energy efficiency / sustainability / renewable	aduncan@ccsnh.edu

	Program		energy systems	

Student Participant Profile (Identify the student population/s to be engaged in the project. Identify if this has been or is planned to be incorporated into curricula)

Class/ Student Organization/ Individuals	Role in Project	Academic Level (Undergraduate or Graduate)	Academic Discipline	Total Student Population
TESD Students	Experiential, problem based learner / Facility user	Undergraduate and graduate	all	~150
Common Ground Student organization	Experiential, problem based learner / Facility user	Undergraduate	all	~40
Students enrolled in sustainability classes and other classes	Experiential, problem based learner / Facility user	Undergraduate and Graduate	all	All PSU students

IRB (Institutional Review Board) Compliance

IRB Compliance: <http://www.plymouth.edu/office/institutional-review-board/>

- This project DOES NOT require IRB compliance
- This project DOES require IRB compliance (*complete below*)

IRB Approval Status: *Select an Option*

IRB Approval Date: *Click here to enter a date.*

Any funding approvals of IRB-required projects are contingent on obtaining IRB approval.

Project Management: Timeline and Milestones

Identify the timeline for the project including start, completion, and major project milestones. A closing report will be required as a part of the project funding process.

Project Start Date: 12/1/2017

Project Complete Date: 5/30/2020

Project Milestone	Milestone Description	Target Completion Date
Assessment	Initial Assessment of building complete, first projects designed by class(es)	5/30/2018
Projects Stage 1	Evaluation of completed projects, Assessment of reduced operating costs	12/15/2018
Projects Stage 2	Evaluation of completed projects, Assessment of reduced operating costs	5/30/2019
Projects Stage 3	Evaluation of completed projects, Assessment of reduced operating costs	12/15/2019
Final Projects and Conclusion	Evaluation of completed projects, Conclusion of project, Final report issued	5/30/2020

Please identify any pre-project education or training for students, faculty, and staff that would be helpful for your project team to have in advance to begin work on a strong footing (e.g., skill training, concepts), and identify any training and education that you are willing to help provide during the preparatory period for the project team before team work formally begins.

Student Education/ Training Requirements: Training for students will be provided through classes and workshops. Training for how to work with this program will be provided in an event that is open to all that will be hosted by the proposal's authors.