STUDENT TECHNOLOGY FEE PROGRAM
2015 TECH INITIATIVES SUMMARY SHEET

Student Applicants:
Complete “Project Title,” “Applicants” information, and “Submission Date” only (top section).

Project Title:  GigaPan for Place-Based Learning through Time and Space  
Department /Organization:  Geology (MS student)

Applicants (first applicant is considered primary contact):
Name: Harold Wershow   Mail Stop: 9080   Email: wershoh@students.wwu.edu   Phone: 505 500 0045

STF Grant Request (from page 1 of 2015 proposal form: line 6) ......................... $ 1900
Authorization for contribution resources (if applicable):  

Submission Date: 3/27/2015

______________________________________________________________

SUBMITTAL APPROVALS

AS President  Required for all proposals submitted by Associated Students (AS). Signifies that all student proposals have been prioritized by AS.

[Signature]

Department Chair  Required for all proposals from a specific department. Signifies that the department can support the project as submitted.

[Signature]

College Dean or Unit Head  Signifies that the College or organizational unit can support the program as described.

**Project’s Strategic Priority by College:**  
For proposals originating from a college, the dean must review, sign, and strategically prioritize that batch of proposals.

Space Administration  Required for all proposals that require additional facilities or changes to existing facilities. Signifies that all space-related issues have been addressed.

Vice Provost for Information Technology/CIO  Required for all proposals related to all-university services and all proposals not related to a specific discipline. Signifies that the technology support organizations and technical infrastructure can support the submitted project.
Student Technology Fee – AY 2015
Tech Initiatives Proposal Form
DUE April 2, 2015

Project Title: GigaPan for Place-Based Learning through Time and Space

Department/Organization: Geology

Project Applicant(s):
Principal Contact
Name Harold Wershaw MS 9080 Email: wershoh@students.wwu.edu
Phone 505 500 0045

Others
Name MS Email: Phone
Name MS Email: Phone
Name MS Email: Phone
Name MS Email: Phone

Amount Requested for Project
Proposed Budget:
1. Equipment total $1900
2. Plus site preparation (not STF funded) + $
3. Total Project Cost (spreadsheet total from part IV of this form, Total Project Budget) = $
4. Less organization’s contribution – $
5. Less site preparation – $
6. STF Grant Request = $1900

IMPORTANT NOTE
1. THE STF Committee will accept only complete proposals by the announced deadline. Every section (I–IX) and all items of this proposal format must be addressed.

I. Executive Summary (800 words max)

Provide a summary of the project and the benefits to be derived. Explain what the students would gain from the project, and how the acquisition would meet the Student Technology Fee mission.

STF Mission:
The Student Technology Fee provides Western students with adequate and innovative technology experiences by:

- Broadening/enhancing the quality of the academic experience
- Providing additional student access to technology
- Increasing integration of technology into the curriculum

I am seeking funding for a GigaPan system, which records high-resolution digital panoramas so that the object or landscape of interest may be captured, revisited, and
further explored (see gigapan.com for more information). GigaPan creates an immersive image in which users can zoom from landscape-scale down to individual rocks, trees and flowers. Users at WWU would be able to use the GigaPan system to create GigaPan images on field trips and for projects. GigaPan images can then be viewed by students in classes and for homework assignments. Besides capturing landscapes for field-based scientific studies, it can also be used in Art, Communications, Marketing, Journalism and many other disciplines (see http://gigapan.com/cms/about/success-stories for examples of GigaPan uses). GigaPan is already in use in many curricula (see http://gigapan.com/cms/use-learn for examples), some of which include student production of the GigaPan image. Although the system would be available for students and faculty throughout the school, it is primarily intended to augment Geology Department classes such as Geomorphology, Remote Sensing, Landslides and Glacial Geology.

The GigaPan technology consists of a digital camera attached to a computer (known as a GigaPan Robotic Camera Mount), which is in turn mounted on a tripod. The computer rotates the camera through a user-defined panorama field and instructs the camera to take hundreds to thousands of images at varying focal depths. The included software “stitches” the images together into one seamless interactive GigaPan image. Although GigaPan is a consumer product, designed for ease of use, users must be familiar with the hardware (camera, tripod and computer) and the software (to stitch the images together). These skills can easily be demonstrated for users by the equipment’s steward, and the GigaPan website has video tutorials to further assist training.

The WWU Geology Department, which has an established protocol for making expensive technology equipment available to students (both majors and non-majors), would serve as the custodian of the GigaPan system (computer, camera and tripod). Professor Doug Clark has agreed to serve as the GigaPan steward. Users would contact Dr. Clark, arrange a brief training session with him, and then be cleared to take the equipment into the field. Although durable, the GigaPan system is still a sensitive piece of electronics that requires care in use. Student users will need to have written support of a faculty member, acknowledging responsibility for its proper use the equipment. The highest priority use would be for recording key sites on class field trips or vulnerable sites that may be lost due to excavation or burial (likely five to fifteen days of use per quarter). Otherwise, it would be available for campus-wide student and faculty use.

Students would benefit from GigaPan both as producers of the images as well as consumers of the images. Consumer-users in Geology classes would total ~150 students per year; each of these students might be a producer-user as well. Additional producer-users are only limited by equipment availability; there will be at least 50 - 60 days of availability each quarter. Students and faculty from any department might use these days, enabling hundreds more students to benefit from this technology.

The Geology Department already has a suitable camera. Besides the GigaPan computer, an upgraded camera lens (300mm) is necessary, and a survey-quality tripod is needed as well.

The GigaPan system would enhance students’ academic experience by improving the accessibility, in space and time, of place-based learning experiences. Students would be able to use this technology for academic projects, allowing them to create GigaPan images of wherever their creativity takes them and become proficient in an emerging technology. Class instructors would incorporate this technology into class curriculum, both as a technology-based learning experience in the course of a field trip and as an interactive digital recreation of the field trip.
II. Relationship to STF Objectives / Impact on Current Academic Programs

The STF Committee will use as its primary assessment criteria the three objectives—quality, access, and integration—defined in the STF mission (above). Given this criteria, describe your proposed project in detail.

1. Tell us—focusing on what the students will gain from the project—how the project would provide positive benefits to specific courses or instructional programs. Specifically, answer at least one of a, b, and c below:

a. How would this project provide additional student access to technological resources?

All WWU students would be able to check out the equipment for class assignments and research projects, allowing them to create GigaPan images. Additionally, students would be able to use the images generated by the equipment for class assignments.

b. How would this project broaden or enhance the quality of the student’s academic experience through the proposed technology?

Because a GigaPan image is an immersive re-creation of a time and place, it allows future users to explore a landscape that no longer exists, is inaccessible, or simply demands further investigation. For example, the Geology Department’s Geomorphology (Geol 310) class routinely visits gravel quarries to examine sediment layers deposited by glaciers. The quarries are active, meaning that the quality of layers exposed changes with each visit. Using a GigaPan to record the exposed layers would allow current students to further explore the site and allow future classes to see a particularly interesting exposure that has since been removed or buried. Furthermore, repeated imaging at the site over time allows students to observe the dynamic nature of landscapes (e.g., landslides or eroding coastal bluffs), a key learning goal in any Geology class and especially in Geomorphology.

Besides offering a powerful means to record and investigate landscapes, GigaPan also can be used as a virtual field trip for students unable to attend the original trip. The interactive nature of the GigaPan image permits immersion as if the user was in the physical environment. Many students work jobs on weekends, preventing them from attending field trips. Other students have disabilities that prevent them from fully participating on field trips. GigaPan technology would greatly help students who are currently missing out on aspects of outside-the-classroom learning experiences.

The previous two examples highlight how GigaPan might be used in a specific class, and how GigaPan would address a critical weakness of place-based education. Any class that uses visual exploration of place would be able to benefit from this technology as well. For example, an urban design class might create a GigaPan of Bellingham from the watchtower on top of Sehome Hill and use the image to explore how the city fits together. A sculpture class might create a GigaPan of Haskell Plaza, analyzing how the outdoor sculptures affect our spatial experience. The technology might be used in many ways, greatly benefiting the academic experience at Western Washington University.

c. How would this project increase integration of technology into coursework?

Student projects using GigaPan would directly involve students in the creation and processing of digital imagery, as well as increasing proficiency with digital camera technology. Class assignments using GigaPan would involve students in the active analysis of digital data.
2. Would other departments be involved with this project?

No ☐ Yes ☐ If yes, describe.

3. Has any part of this project previously been funded by the Student Technology Fee?

No ☐ Yes ☐ If yes, describe.

4. Is the proposed project a pilot project?

No ☐ Yes ☐

III. Utilization

List the anticipated number of times and duration per each use—per quarter or per academic year—that students would use the proposed technology. The committee is looking for total student hours and total number of unique students who would use the technology in that time period. Explain how you arrived at this utilization.

**Geomorphology (Geol 310):** Offered once per quarter, ~25 students, 5 field trips, 1 final project; Students would review imagery from each field trip for class projects (1 hr per student per field trip); Students would create imagery for final projects (3 hr per student); 25 * 1 * 5 + 25 * 3 = 200 student hours per quarter

**400-level Geology classes (Glacial Geology, Landslides, Remote Sensing, etc):** At least one offering per quarter, ~25 students, varying numbers of field trips and assignments; hours would vary depending on instructor; 4 hrs per student would be minimum estimate; 4*25 = 100 student hours per quarter

Minimum of 50 unique students and 300 student hours for prescribed Geology course work each quarter; Unknown usage for other classes, other departments and individual projects;

IV. Total Project Budget

This section details the estimated total cost of the project. Include costs that would be covered—by your department or another source—for ongoing costs such as personnel or operating expenses.

1. For assistance in preparing your budget, please consult with relevant campus support departments (ATUS, Purchasing, Space Administration, etc.).

2. For more information about these contacts and helpful tools/links: from the STF website home page (http://www.wwu.edu/stf), choose “STF Tech Initiatives” on sidebar, then section “II. Tech Initiatives Forms and Instructions.”

Attach an Excel spreadsheet if you have additional details.

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Item Cost</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>GigaPan Epic Pro Robotic Camera Mount Pano Head (GigaPan computer)</td>
<td>1</td>
<td>995</td>
<td>995</td>
</tr>
<tr>
<td>42 in. -72 in. 5/8-11 flat head, black HD Fiberglass Tripod</td>
<td>1</td>
<td>99</td>
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</table>
### Nikon 70-300mm f/4.5-5.6G ED IF AF-S VR Nikkor Zoom Lens (camera lens to be paired with Geology Department's Nikon D300)

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<tr>
<th>Item</th>
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</table>

This budget total (or your attached spreadsheet total) should match the projected budget figure on page 1 of this proposal. (See box on page 1, line 3.)

**Important Notes from the STF Committee:**

- We recognize your proposed budget as an estimate. Final funding for successful projects will be established after thorough technical review; some costs may need adjusting due to price changes.
- We recommend that you include a 3 percent cushion to allow for price increases.
- We may impose special conditions on a proposal before approval. See [STF Proposal Guidelines](#).
- Funding is not provided directly to departments for purchases. All purchasing is done via the Office of the VPIT/CIO and savings are retained in the STF fund.

3. What funding or contributions are available from your department or other sources?

**Note:** “Contribution” is defined as a monetary contribution. A vendor discount, for example, is not considered a contribution.

None, although the project will use a Nikon D300 camera already owned by the department.

4. Could this project be divided into discrete elements that could be funded separately?

**Note:** A “no” response to this question creates an “all or nothing” proposal. That is, if the STF Committee decides against funding your entire proposal, it will not consider any elements for partial funding. If elements could be funded separately, the applicant is responsible for prioritizing them before submitting the proposal.

No ☑ Yes ☐ If yes, summarize and prioritize project elements with cost estimate for each.

5. Are course or lab fees charged for any of the courses that will use this equipment?

**No ☐ Yes ☑** If yes, describe. Please note: The total funding requested from the Student Technology Fee must reflect the amount collected from course fees for equipment replacement and/or equipment acquisition.
$45 Course Fee for Geomorphology (Geol310); $52.50 for Glacial Geology (Geol440); fees for other courses as well;

V. Impact on Existing Resources

Your proposal must address the project’s potential impact on existing resources. Give special attention to the impact on data transmission networks (e.g., sources accessed, networking equipment, etc.), and personnel (e.g., staffing, administrative support, faculty support, etc.).

1. Describe how existing equipment is used. Contrast this to projected use if your project were funded.

The department’s Nikon D300 is infrequently used for research projects. It would be used more frequently if this proposal is funded.

2. Is similar equipment or technology available elsewhere on campus—such as the Student Technology Center, Classroom Services, Video Services, Western Libraries, a college lab?

No ☐ Yes ☑ If yes, describe why the existing equipment does not meet the needs outlined in this proposal.

3. If this project involves the replacement of equipment, including computers:

   a. Describe the “before and after” configuration changes. (A spreadsheet reflecting these changes may be attached.) Or, write “N/A.”

      N/A

   b. Describe the costs and benefits of replacing vs. upgrading. Or, write “N/A.”

      N/A

4. Would this equipment be available to students outside of your department?

   No ☐ Yes ☑ If the proposed technology would be used by students outside of your department, describe how they would gain access, how equipment availability would be publicized, the hours/week when equipment would be available, and any costs that would apply.

   Students outside of the department would check-out the equipment by the same procedure as Geology majors (see #5). Equipment availability would be publicized on the department’s webpage, as well as ATUS’s equipment list. Other academic departments (Art, Communications, Marketing, Journalism, etc) would be notified regarding the availability of the GigaPan technology. It would then be their responsibility to publicize the technology to their students. The equipment would be available for check-out from 9-5 M-F.

5. Does this project involve the check-out of equipment to students?

   No ☐ Yes ☑ If yes, discuss whether or not the Student Technology Center/ATUS Loan Pool could be assigned this task.

   The Geology Department has an established protocol regarding expensive equipment, such as the Malvern Mastersizer 2000 (laser particle size analyzer), which was also purchased using STF funds. Because this type of equipment is sensitive and expensive, all users must A) have faculty support prior to requesting use and B) have training from the equipment’s steward.
Also, because the Nikon D300 camera is owned, used and housed by the Geology Department, it makes sense to have the other components (tripod and GigaPan computer) available in the same place, via the same procedure.

6. Does the department have adequate operating funds to provide ongoing maintenance and support?

No ☒ Yes ☐ If yes, describe.

Minimal maintenance is anticipated.

7. Does the department have adequate personnel funds to provide ongoing staff support for the project?

No ☐ Yes ☒ If yes, describe.

Professor Doug Clark would initially train users. Eventually, department technician Ben Paulson would train users, in line with his current duties.

VI. Space and Site Information

This section addresses any space alteration or site preparation necessary for the proposed project. Site alterations include painting, holes in walls, security systems, carpeting, construction, lighting changes, or conversion of a lab or office.

Special Note: If this project would require any site preparation, or if this project would use any space not currently under your department’s control:

a. You must submit a draft proposal to Space Administration by March 13, 2015.

b. Space Administration and Facilities Management will then conduct a site survey and respond to you by March 20, 2015 about project feasibility, cost, and schedule.

c. You must include the site survey response with your final proposal.

1. Location for installation of equipment or technology:

   Mobile technology, no installation required.

2. Would site modification be required?

   No ☒ Yes ☐ If yes, describe the modifications (e.g., electrical, air, painting, lighting, security, network access, etc.).

3. Would this project use space not currently assigned to your department or area?

   No ☒ Yes ☐ If yes, describe.

VII. Project Schedule

Describe your overall implementation schedule. (Remember that project awards are announced during spring quarter, and that projects are to be substantially completed by the end of the calendar year.) If any site preparation is involved (see section VI above), align your project schedule with the schedule provided by Space Administration and Facilities Management.
Equipment would be procured as soon as possible after award notification. GigaPan system would be test-run during the summer. The GigaPan system would be implemented into Fall Quarter geology classes.

VIII. Constraints

List or describe any external or internal factors/constraints that could affect your project schedule, project objectives, or the project budget (e.g., if external approval is required for curricular changes, or if funding must be received by a certain date).

None anticipated

IX. Submitting the Proposal

1. Make sure your proposal does not exceed 12 pages (not including Tech Initiatives Summary Sheet).

2. Complete a 2015 Tech Initiatives Summary Sheet for the front of the proposal.

3. Submit the proposal and summary sheet electronically for prioritizing (PDF preferred, or Word document):
   a. Faculty and staff: Submit by internal due date, which must be before proposal due date of April 2.
   b. Students: Submit by March 31 to AS VP for Academic Affairs at ASVPforAcademicAffairs@wwu.edu.

4. Submit prioritized proposals:
   a. Organization reps and AS VP for Academic Affairs: Submit to Student Technology Fee (STF) Committee by 12:00 noon on April 2.
   b. For each proposal, email one electronic version (PDF preferred, or Word document) of both the proposal and the summary sheet to diane.bateman@wwu.edu (the STF Committee secretary).

Note: Paper copies of proposals are no longer required; please do not send.