CALIFORNIA STATE UNIVERSITY SAN BERNARDINO

Division of Information Technology Services

Palm Desert Campus (PDC)   **Avisinia**   **Rodriguez**

Total Amount Requested for FY 2018   **$6,000.00**

Project Title: **PDC advising and student engagement**

Project Abstract:

At PDC we are try to mimic the services offer at the San Bernardino campus in particular in reference to academic advising and campus engagement. There are some services we can provide but don't due to lack of technology we don't and would like to do so.

Challenge(s) this project will address:

We don't have access to laptops or tablets for our campus events. By getting me technology at PDC, we would be able to provide our students will better assistance when it comes to advising. During advising week, we would like to table and have students check their holds around campus on laptops like they do in San Bernardino . Also, when we have campus events, there is no way to track how many students attend our events. We have univeristy hour mandatory tutoring yet no way to tracking who attends so with a tablet we can check students in (just how they do it in San Bernardino).

Alternate solution(s) should this project not be funded:

Some of the staff might be able to donate their personal laptops or tablets if the project does not get funded.

Impact(s) if this project is not funded:

If we get funded, we could make data driven decisions on when to have campus events and we can track who attends events. At PDC, we have different student centered initiatives (i.e learning communities, university hour, student leadership and community service certificate, community service) in which we have minimal data on. If we want to track the success of the programs having data will help us know where we should focus our time.

Cost: $$ (One time or recurring)

$6,000 one time cost for 3 laptops (advisors) and 6 tablets for campus events

What are your intended Process Outcomes and/or Student Learning Outcomes?

We want to use the university Learning outcomes from the CSUSB website:

Engagement in the Campus, Local and Global Communities: Students develop dispositions and apply intellect and behaviors to respect and promote social justice and equity on campus and across local and global communities.

Diversity and Inclusion: Students understand how dynamics within global communities influence the ways in which people see the world. They develop dispositions to respectfully interact and collaborate with diverse individuals and groups and acknowledge their own perspectives and biases.

Ways of reasoning and inquiry: Students engage in diverse methods of reasoning and inquiry to define problems, identify and evaluate potential solutions, and determine a course of action.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

Engagement in the Campus, Local and Global Communities: student attendance to campus and community events.

Diversity and Inclusion: by attending events students will interact with other community members and students from diverse backgrounds.

Ways of reasoning and inquiry: holds will be cleared sooner (before open enrollment)

Project Timeline   **Start:** 02/06/2017   **End:** 06/14/2019   **First Quarter of Student Use**   Winter 2017 for spring 2017 registration

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/21-99e2c137029335e776305b43ce483b53_VETI_BUDGET_TEMPLATE.xls

VITAL/EXPANDED TECHNOLOGIES INITIATIVE FY 2017-2018 PROPOSALS

Proposal ID: **34**

Division

Academic Affairs   College of Natural Sciences

Campus Division   **Geraldine**   **Fike**

Total Amount Requested for FY 2018   **$55,000.00**

Project Title: Simulation as a Multidisciplinary Team Approach in Health Care Programs in an Urban University Setting

Project Abstract:

Patients are cared for by a nurse and multidisciplinary teams which may include physical therapists, social workers, and public health workers; however,   students in health care programs usually will not experience necessary scenarios developing needed skills.

Although needed skills are learned within the walls of the university they remain in a silo. Combining classes and replacing certain curriculum activities with patient simulation projects that include several departments may enhance student access across the institution and improve their educational experience and success. Examining the effects of innovative simulations provides enhanced training for student's use of technology in support of active learning while remaining positively engaged in their education.

Simulation is technology used to enhance instruction resources for all students. Simulation not only captures the attention of the video -game generation but actively engages students in the learning process supporting the Graduation Initiative. Studies show industries with known hazards experienced small failures rates when simulation was implemented. Simulation is proven to be the best experience to keep students actively involved in learning by offering the opportunity to apply knowledge learned to the clinical setting, thus making it real. Simulation can increase completion rates of healthcare education programs by providing hands-on exercise, illustration, and reinforcement concepts of skills promoting student development, success in courses, graduation, and career preparedness. It is compelling to consider the impact of simulation in increasing the competency of students when they are in the work force while decreasing error rate and impacting the quality of care.

Challenge(s) this project will address:

This project will provide students from multiple disciplines the opportunity to collaboratively care for a patient by providing replicated experiences necessary to develop essential skills. Therefore, classrooms of students could be affected in labs, upper division courses and instead of optional, be required.   Creating and experiencing simulation scenarios lessens the potential error rates for new grads. Currently the responsibility for producing a nurse and other healthcare workers with sharpened critical thinking skills frequently falls to the employer. The assessments will allow them to have an edge over other programs . Simulation will help facilitate learning and assist in the transition of the newly graduated student into skilled and safe practitioners.

Alternate solution(s) should this project not be funded:

The alternate solution is to continue the healthcare programs separately in the same manner of episodic exposure to care of the patients.

Impact(s) if this project is not funded:

Practice makes perfect, yet the majority of nursing and health care education occurs and would remain in a classroom. Graduates have a difficult time in applying their learned skills upon a sick patient instead of experiencing and perfecting skills in a simulated environment.

Cost: $$ (One time or recurring)

$55,000 one time

What are your intended Process Outcomes and/or Student Learning Outcomes?

Funding of this proposal will:

1.   increase student's use of simulation technology
2.   increase student satisfaction and confidence using the simulation experience
3.   combine classes and curriculum to include multidiscipline collaboration. This
      will impact how the students learn in real life like scenarios and may lead to
      lowering time to degree completion while improving the educational experience

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

For assessment plan and key performance indicators:

1.   Increase usage of the simulators in academic programs (Health Sciences,
      Kinesiology, Nursing, Social Sciences) by implementing at least one simulation
      into the teaching strategies of the Faculty (Dr. Fike, Dr. Blue, Dr. Munoz, Dr.
      Okpala, Dr. Escalante, Dr. Kim) in proposal by Fall, 2017.
2.   100% of students will participate in using a validated tool to measure
      satisfaction and self-confidence such as the National League of Nursing
      Simulation Survey Tool/Instrument.
3.   Compare satisfaction and self-confidence rates between disciplines.

Project Timeline   **Start:** 07/01/2017   **End:**   06/30/2018   **First Quarter of Student Use**   Fall 2017

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/165-abf81753751f792b4c2e8511aac3d071_Simulation_VETI_BUDGET_TEMPLATE.xls

Division		
	Academic Affairs	College of Business and Public Administration
	Campus Division **Victoria**	**Seitz**

Total Amount Requested for FY 2018 $65,000.00

Project Title: The HUB (Helping to Understand Business)

Project Abstract:

How we teach is being transformed by technology and how students learn.   Moreover, the qualities that employers seek emphasize problem solving and team work rather than independence and memorization . Given that over 1100 students in marketing, finance, accounting, and information technology work in this classroom annually, the Marketing Department is proposing to remodel the Marketing Lab in JB 255 to be reflective of today's curriculum that involves team-based experiential learning and the state of technology that fosters collaboration in a classroom setting. The HUB supports the College and University mission through its commitment to nurturing a high quality educational environment that ensures student and faculty success. Specifically, The HUB supports the JHBCBPA Strategic Plan goal # 1 by implementing a state-of-the-art teaching space that enhances HIP's in the business curriculum. The curriculum in marketing involve courses that are, by their very nature, problem solving and collaborative.   Creating a space that allows teams to create and problem solve in a collaborative environment will ensure attainment of AACSB learning goals and student success. The vision for The HUB is to create learning clusters that allow students to work in teams and to advance their plans while accessing technology to facilitate their development.   These learning work stations will include screens where students can project their laptop or smartphone files onto the screen or to work directly on the computers provided.

Challenge(s) this project will address:

Over 1,100 students in marketing, information technology, finance, and accounting   take classes in JB 255.   The curriculum in business focuses on experiential team based learning; however, the room is set up for individual study and not collaboration.   The challenges this will address is providing a collaborative learning instructional environment where students can work on projects and have access to technology to do it.   In the programs offered in the Marketing department involve curriculum that is experiential with 99% of the courses involving team projects; however, the room does not allow for collaboration nor does it provide the technology so that students can create and problem solve.   Students are frustrated because they do not have the technology or the room set -up to be able to function as teams during class and often leave to go elsewhere such as the library away from the instructor to work on their group projects. This hinders their ability to develop a plan with direct feedback from the instructor to ensure its success.

Alternate solution(s) should this project not be funded:

If the project is not funded the department will try to raise funds to secure the dollars to make the room a reality. If funds are not made available we will not be able to achieve the learning goals set forth by AACSB nor be able to support the system-wide graduation initiative. Further, if the project is not funded, the Department will need to work with the College is setting up an alternative floor plan to facilitate group work.

Impact(s) if this project is not funded:

Approximately 336 students per quarter take courses in JB 255 for a total of approximately 1100 students per year.   Students will not have the tools to collaborate effectively and problem solve which will hinder their ability to understand concepts, achieve AACSB learning goals, and matriculate on time, meeting system -wide graduation initiatives. Moreover, without the ability to work in a collaborative environment students will not get the jobs that they want nor will they have the skills that employers are seeking.

Cost: $$ (One time or recurring)

The cost for redesigning JB 255 will be approximately $100,000. The College has allocated $65,000 to support this; however, if funds are secured through the VETI grant, then College funds can be freed up for student success initiatives that include funding for more sections of bottleneck courses, additional staff for advising and closing the gap in meeting the system-wide graduation initiative.

What are your intended Process Outcomes and/or Student Learning Outcomes?

Process outcomes:
1. Students will work more effectively in teams and be able to problem solve collaboratively,
2. Students will exhibit increased satisfaction and excitement regarding projects and their concentration,
3. Students will spend more time collaborating with their team members during the class time.
4. Students will be able to work as teams and be job-ready

Learning outcomes
1. Students will have a greater understanding of marketing and advertising planning.
2. Students will exhibit an understanding of marketing processes in planning.
3. Students will exhibit an enhanced understanding of data analytics and problem-solving skills
4. Students will improve their oral and written communication skills.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

The HUB will be assessed two ways:
1. We will compare projects conducted prior to the room with projects developed after the room has been modified. This will provide evidence for Process Outcome 1 and Learning Outcomes 1 and 2.
2. We will conduct a student survey to determine student attainment of the AACSB learning goals that include problem solving, written and oral communication, data analysis, ethics and global perspective.   This will provide evidence for process Outcome 1 and Learning Outcomes 1, 2, and 3.
3. We will conduct a retrospective Pre-test Posttest faculty survey to determine the use of the room before and after the redesign .This will provide evidence for Process Outcomes 1, 2, 3,4 and Learning Outcomes 1, 2, 3,4

Project Timeline   **Start:** 08/01/2017   **End:** 09/21/2017   **First Quarter of Student Use**   Fall 2017

Statements of support by collaborating organization(s) or department(s) (if applicable)

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/79-76dc09e927784fef06b19aba45811014_Letter_of_Support_3.docx

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/82-637c38c69f617fd9db0fbbf92f48680d_Letter_of_support_2.docx

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/99-7a362ad692c2743259dae4f02c538e4c_VETI_letter_of_support.docx

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/165-bb95143f77e07c985edd4d04a1e2a46d_Letter_of_Support4.docx

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/21-7e637e9fb2994db970301686323d0e86_VETI_Marketing_HUB_LAB.xlsx

Division			
Academic Affairs		College of Arts and Letters	
Campus Division	**Kurt**	**Collins**	

Total Amount Requested for FY 2018 $81,708.00

Project Title: Lasers for Cutting, Etching and Engraving

Project Abstract:

Laser cutting machinery is a vital component of any technology based creation or fabrication lab. It has countless uses across multiple disciplines. This machine may be used by designers to create industrial, architectural and graphic design projects. It may be used by artists to cut, etch and carve materials such as paper, plastic, wood, aluminum, rubber, leather, stone and steel. It may be used by engineers to cut and prototype circuit boards. It may be used by mathematicians to fold complex shapes for structural engineering applications. Simply put, it is a computer controlled knife with millimeter precision.

Challenge(s) this project will address:

This hardware will address the issue of not having a high-precision, infinitely repeatable cutting, etching and engraving tool. This tool preforms functions that can't be done by humans using traditional tools. Consider a cut that mimics the cells of leaf, these cuts are so fine and close students can't perform the cuts.

Alternate solution(s) should this project not be funded:

There are certainly less expensive laser cutters. This laser cutter was selected because it is able to perform well over many different applications. There is not an alternative to a laser cutter, only alternatives to the size and capability of the laser cutter.

Impact(s) if this project is not funded:

Students and researchers will not have access to a laser cutter. While it is possible to have commercial shops do one's laser cutting, it is not practical to experiment with a laser cutter at a commercial business.

Cost: $$ (One time or recurring)

All costs are one-time. All equipment and training is supplied with the purchase of the machine. Normal life of Laser tubes (generator of the cutting beam) is 5-7 years. replacement cost of the laser tube on this machine is $2000 with no installation costs.

What are your intended Process Outcomes and/or Student Learning Outcomes?

Lasers used for cutting, etching and engraving are standard equipment in the fields of Design, Applied Arts and Engineering. This tool will allow for students in Design, Art and STEM fields to be work ready upon graduation. This tool will allow for a much broader curriculum because areas of learning and research that were previously out of reach will now become part of the curriculum. While most don't appreciate that the fields of Design and Applied Art are expanding and advancing at rate much higher than other fields and most of these advances are made possible with these emerging technologies. This equipment is also considered "basic technology" for fab labs.

Learning outcomes will include:

1.   The ability for traditional 2D artists to move into the 3D world by leveraging existing knowledge of vector based two-dimensional drawing software applied to three-dimensional objects.

2.   STEM based students (specifically Math) will be able to touch and fold objects that previously only existed in computers. This is manifested in the field of Technical Origami. Mathematically based objects that a cut and folded to create objects used for structural engineering applications.

3.   Students involved in Industrial Design are able to create furniture and everyday objects from flat, renewable source material such as cardboard, plywood and MDF board.

4.   Engineering students are able to precisely cut circuit boards for prototyping IoT (Internet of Things) projects.

5.   Art Students will able to repeatably and precisely cut non-metallic materials, etch and engrave paper, wood, plastic, stone and glass.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

Evidence of outcomes will be demonstrated by:

1.   Projects will be added in which students will need to design cut and fold packaging projects.

2.   Collaboration between Math (500 level topics course) and Design (Art 382 3d Design) students will result in folded 3D objects based on math models

3.   Projects will be added to both Art Sculpture and Design courses resulting in furniture created from flat renewable materials

4.   Collaboration between CSE and Design already exists for gaming applications, this will take the collaboration further most likely in the form of a special topics course.

5.   Art students in the Wood studios will use the laser to cut and carve wood and this will appear as a project in the course. Printing students will use the laser to etch images on to stone or metal plates for Lithographic printing. Glass and Ceramics artist will use the laser to etch or print to materials.

Additionally lab books will be kept to account for the usage of the machine, its purpose and attendant courses.

Project Timeline   **Start:** 10/02/2017   **End:**   10/01/2018   **First Quarter of Student Use**   Fall 2017

Statements of support by collaborating organization(s) or department(s) (if applicable)

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/99-95b33782e4349130731b286d7a4b0fff_Letter_of_support_Ed_Gomez.pdf

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/99-4d9f5d039efd04893de57753c42887de_COLLINS_VETI_MPOOLEsupport21Mar2017

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/21-1bf8e5bd8ef967336fa9c8da86f25bfa_VETI_BUDGET_TEMPLATE_Lasers.xls

Division

Academic Affairs		College of Natural Sciences
Campus Division	**Amanda**	**Salazar**

Total Amount Requested for FY 2018 $16,044.00

Project Title: Natural Sciences Peer Advising Center Computer Upgrade/Proactive Academic Advising Outreach

Project Abstract:

The Natural Sciences (NSCI) Peer Advising Center (PAC) provides holistic academic advising for over 2,000 students per quarter. Our request is threefold. 1) We are requesting funds to replace the eight outdated computers within our office. Our computers are 10+ years old and will often take up to 20+ minutes to turn on, freeze, or suddenly turn off while we are advising students. 2) We are also requesting funds for 2 computer stations for our advisees. These computer stations will enable our students to complete any recommendations set forth by their advisor (such as enrolling or dropping a class) and allow us as advisors to address any concerns before the student left. 3) We are also requesting funds for one laptop and two iPads which will enable us to do more proactive advising. By having this technology, we would be able to do more "on-the-go" advising. This will allow us to reach more students, thus increasing their access to academic advising and in turn increase student success. With the 2025 Graduation Initiative, we understand that academic advising is a key factor in getting students to graduate. With an upgrade of our technology, we would be more efficient and proactive with our advising efforts and thus increase student success.

Challenge(s) this project will address:

This project will allow for the upgrade of outdated computers for our office. This will enable us to advise students in an efficient and timely manner as sessions would no longer be interrupted by the computer freezing, turning off, etc. Thus, our students' level of satisfaction with their advising sessions will increase. As well, the student workstations will enable us to assist our students with online activity, such as swapping classes, accepting their financial aid award, etc. before they leave their advising session. In addition, it will allow us to be more proactive in our advising efforts as we would have the technology to advise students "on-the-go". This will also help with our visibility efforts as we are located in the back of campus [Temporary Classrooms (TC)-31]. Often times students don't know that we exist or where we are located. This technology will allow us to meet the student where they are and thus establish a connection between the student and their academic advising resources.

Alternate solution(s) should this project not be funded:

If funding is not granted, we will continue to use the computers we currently have. We will continue to do outreach, but won't be at full capacity without technology. We will also look for outside funding possibilities as our department is unable to fund our requests.

Impact(s) if this project is not funded:

We have to access many items on the computer to properly assist our student. Such things include, but are not limited to: developing educational roadmaps, PeopleSoft, PAWS, class schedule, bulletin of courses, tracking student data, student satisfaction surveys and Student Success Collaborative (SSC) SSC Campus. Our office productivity will not be up to our full potential without an upgrade of our computers. Having an up to date computer that has memory and hard drive space will allow us to be efficient when meeting with students and thus students should share a higher level of satisfaction with our services. As well, students who need assistance with online activities will have to continue to do so on their own once they leave their advising session. If any problems or concerns arise while they are doing so, we would not be present to assist them. They would then have to wait until they are able to get in contact with us. As well, we will continue with our current outreach activities. However, we would not be fully capable to assist students without the proper technology.

Cost: $$ (One time or recurring)

$14,643

What are your intended Process Outcomes and/or Student Learning Outcomes?

1. NSCI PAC would have access to optimal technology that will enable advising sessions to operate in an efficient and timely manner. 2. Improve students experience and success by providing access to computers which will enable our office to guide them through academic related inquiries. 3. Increase student use of advising resources through proactive outreach efforts.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

1. Student satisfaction surveys 2. Student satisfaction surveys and tracking the number of students who utilize the computer stations 3. Track the number of students we serve through our proactive outreach efforts. Specifically, we will utilize SSC Campus to create sign-in kiosks that will allow students to input their Coyote ID numbers and thus track the number of students we serve outside of our office.

Project Timeline   **Start:** 07/01/2017   **End:** 06/01/2018   **First Quarter of Student Use**   Fall 2017

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/158-fc724535cfe31c9d81495adbb5b66ceb_VETI_Proposal_Budget.xls

Division		
Academic Affairs		College of Education
Campus Division	**Eun-Ok**	**Baek**

Total Amount Requested for FY 2018 $9,628.21

Project Title: Laboratory for Instructional Technology Phase I: Video Recording Studio

Project Abstract:

The mission of this project is to improve the technology integration skills of teacher candidates and masters' students in technology education programs. Specifically, the purpose of this project is to support students video production by the provision of a Video Studio including a One Touch Studio in the College of Education. While any students can benefit from this project, we envision that the One Touch Studio will directly impact students in the teacher education programs (about 415 students) – Single subject, Multiple, and Special education programs; and Masters students (about 170 students) in the Instructional Technology program, the Career Technical education program, and Educational Administration in the College of Education. As a phase I of the project, we propose to build a Video Studio including a One Touch Studio to provide a simplified video recording setup that can be used without any previous video production experience. This facility will allow students to create high -quality and polished video projects with pushing a single button after plugging in their flash drives. College of Education has secured Room CE 206 tentatively for this project and will manage the studio. This proposal is requesting Vital Technology funds to equip the room with One Touch Studio equipment such as One Touch Studio station, camcorder, camera, and lights.

Challenge(s) this project will address:

According to the California Teaching Performance Expectations (2016), beginning teachers are required to use "media and technology as integral tools in the classroom." In order to engage and support all learners in learning, beginning teachers are expected to use a variety of developmentally and ability -appropriate instructional technologies. Video production has become one of the most important instructional technologies with a nationwide trend of the flipped classroom. It is a pedagogical model that inverts traditional teaching methods, delivering instruction through short videos outside the class while in -class time is devoted to exercises, projects, or discussions. This approach encourages "students to be responsible for their own teaching" (Posnick-Goodwin, 2012 December & January 2013, p. 34).

A video recording studio will be available to the College of Education students, especially to teacher candidates and masters' students in technology education programs. This studio will help students develop high-quality and polished video projects with One Button.

Eventually, this project will improve students video production skills and understandings about the video production set up – appropriate lighting, microphone, software…

Alternate solution(s) should this project not be funded:

The only alternative solutions would be seeking for funds from external grant providers.

Impact(s) if this project is not funded:

Project will not go forward.

Cost: $$ (One time or recurring)

$9,628.42 (One time)

What are your intended Process Outcomes and/or Student Learning Outcomes?

Process Outcome: Students make use of the One Touch Studio facilities and technologies.

Student Learning Outcomes: Successful use of the studio will result in students' 1) improved video production skills and understandings about the video production set up – appropriate lighting, microphone, software…2) improved confidence in technology integration to improve teaching and learning processes.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

- Statistics will be kept on studio usage.
- Students Survey will be implemented in each quarter to find their experience of using the studio and its potential impact on their profession/teaching during the first year.

Project Timeline   **Start:** 07/10/2017   **End:** 06/30/2017   **First Quarter of Student Use**   Fall 2017

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/165-289da4a7a478b4a376e5c67a583f9364_Vital2017_Studio_Budegt.xls

Division

Academic Affairs		College of Business and Public Administration
Campus Division	**Vipin**	**Gupta**

Total Amount Requested for FY 2018 $25,875.00

Project Title: **Public Speaking Lab/Studio**

Project Abstract:

The CGM/JHBC Public Speaking Lab/ Studio will support student development and success in public speaking and oral presentation preparation and delivery. The lab will provide quality peer -to-peer consulting to ANY CSUSB student taking JHBC courses OR in globally oriented student clubs, and seeking oral presentation assistance and critique.   Peer consultants will offer constructive oral presentation consulting to students, from planning to delivery in a risk-free, professional environment.   The lab will be of particular value to students taking MGMT 350 - oral communication course, and AMDN 601 - advanced communication for administration.   The lab will be a resource to students in any JHBC class that requires oral presentations or public speaking.   It will also be available for students to prepare for interviews, and to record their mock interviews using the tool interviewstream that we already have.   Students will also get support for presenting their research at conferences.   Finally, students will be able to earn co -curricular program recognition from their participation in the lab.   Walk-ins will be welcome on a space-available basis during normal hours of operation.   The lab will also double up as a resource for the faculty seeking to prepare online teaching modules for their courses.   The lab will be open at least 8 hours per day, and may have extended hours until 6 pm to support the evening students.   The lab will complement the JHBC Writing Center that already exists, and will help students improve their proficiency on our key university and college program learning goal of communication skills.

Challenge(s) this project will address:

JHBC employer surveys and interviews indicate communication skills is one of the most valued and demanded skill from our graduates.   Many of the first generation students and students with English as their second language lack confidence and competence in effective public speaking, and in articulating their thoughts in effective persuasive manner.   Our assurance of learning assessment has shown that our students have significant gaps in their oral communication and public speaking skills.   Students will be able to use the lab to rehearse their public speaking and presentation several times, and to get feedback from their peers.

The lab will include two private rooms for recording, with 60 minutes of time allocated per student, and one additional room for peer consulting that will accommodate two peer consultants.   The lab will have the capacity to serve up to 100 students per week.

The lab will support the following services:
• Video-taping of speeches and feedback
• Reviews of speech outlines
• Assistance with making delivery engaging and powerful
• Preparation for a defense of thesis
• Help with speech anxiety
• Guidance on speeches given during the interview process
• Preparation for conference presentations
• Feedback on team presentations

The lab will also offer an opportunity to the students to improve their ability to offer speech and communicating consulting and mentoring.   This is a valuable career skill in itself.

Students will have the option of practicing alone by checking out the lab key for up to one hour at a time from, much the way they would check out a book or laptop on reserve. Students can also send presentation files or their recordings to the public speaking consultants via email to receive virtual feedback.   The lab will be staffed by up to four public speaking peer consultants at a given time, or by up to twenty peer consultants every week, depending on the need.   The peer consultants will earn credit for either management consulting or co -curricular credential.   The lab will be overseen by the Center for Global Management, through our staff member Jamie Ayaia, who is our center coordinator and senior communication and public affairs specialist.

Alternate solution(s) should this project not be funded:

If this project is not funded, we will explore the possibility of finding a donor to fund the lab. However, that will delay the project, and the project may lose momentum and not come to fruition any time in near future. Given the critical value of this project and the impact of this project on all our students, we very much hope a positive consideration from the reviewers.   We also hope that our project will demonstrate value for the students, and be so popular, that it becomes adopted at all other colleges as well.   Public speaking labs for the students are an essential element of the learning support system at all leading universities, and our students also deserve the same level of support.

Impact(s) if this project is not funded:

If the project is not funded, students across JHBC and other CSUSB students taking JHBC classes and /or engaged with one of the globally-oriented student associations will not be able to receive the support they deserve and so critically need to get over their anxieties, and to gain confidence in expressing and defending their voice fully.   Without the capacity to effectively speak and present in public settings, and to tell their story in the interviews, our students are at a disadvantage in fully leveraging excellent education they receive at CSUSB.

Cost: $$ (One time or recurring)

The project cost is $25,875, and it is one time cost. The recurring cost will be funded through the College budget, and includes cost of staffing and support estimated at $25,875 per year.   We have identified three rooms - JB 236, JB 430 and JB 531 for the public speaking lab/ studio.   We are also working on building an extension wing on the first floor of JB Hall by Fall 2018, and if the proposal is funded, we may either consolidate the public speaking lab in the extended wing or in JB 504 (by trading space in the wing with cybersecurity center student lab that presently is situated in JB 504).

What are your intended Process Outcomes and/or Student Learning Outcomes?

Process outcome 1 - student use of public speaking and oral communication support, resulting in better rehearsed and practice of team presentations, conference presentations, and interviews, and improved course grades and greater progression and graduation rates.   Oral communication skills are associated with improved agency and engagement of students, and we expect the lab will help improve overall student satisfaction rates with their CSUSB education.   We expect to use appointments and walk-ins as a way to manage capacity and demand, and will work with the academic departments as well as student clubs to achieve inclusion of the entire JHBC student body.

Student learning outcome 2 - improved student public speaking and oral communication proficiency of the students, using the assurance of learning assessment of the College

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

KPI for process learning outcome 1 - # of unique students using the lab per week, per quarter and per academic year, and Average # of times students use the lab per term and per academic year.   Also, # of unique students using the lab, because of the syllabus requirement and mandated by the faculty, and # using the lab voluntarily on their own.

KPI for student learning outcome 2: Improvement in the self reported individual as well as expert assessed collective student public speaking and oral communication proficiency

Project Timeline   Start: 06/19/2017   End: 08/31/2017   First Quarter of Student Use   Fall 2017

Statements of support by collaborating organization(s) or department(s) (if applicable)

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/99-7721bc07327903d31d2006f2ef4a2d1c_GO-C_Letter_of_Recommendation_JHB.docx

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/77-457366c2972ea38428931ac793fc5962_victoria_seitz_-_public_speaking_lab.pdf

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/99-722ac6f87e7605aac3f3e61f7e4c5806_MSA_Letter_of_Recommendation_JHB.docx

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/238-178689a9bd0dc73be95b107a42d059b7_VETI_Grant_Letter_of_Support_170322.pdf

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/67-1f1e5753ef1a7d7cbdfb146dc592e617_VETI_BUDGET_Public_speaking_studio.xls

Division		
	Academic Affairs	College of Arts and Letters
	Campus Division **Teodora**	**Bozhilova**

Total Amount Requested for FY 2018 $26,000.00

Project Title: **Visual Literacy Working Stations**

Project Abstract:

The CSUSB Visual Resource Center (VRC) at the Department of Art provides unique research and visual literacy resources through the development of digital image collections and exhibitions to students and faculty both within the arts and across the university in support of instructional and research activities.

The main goal for the VRC is to create a dynamic learning environment offering students an easy way to navigate configuration of resources, services, and tools in a single location in order to take advantage of emerging technologies, and support changes in visual literacy pedagogy using computers.

The center offers assistance, training, and support in the use of visual resources not only to 500 Art major students, but also to additional 1000+ students enrolled as Art minors or completing general elective (GE) Art classes.

This application seeks funding to purchase ten 27-inch iMac computers to support student work and research and to raise the level of visual literacy among students.

The computers employed currently at the VRC are over nine years old, they are technologically obsolete and not upgradable with contemporary applications and operating systems due their outdated computer architecture. Furthermore, the computers at the VRC are slow and not reliable, they crash frequently causing significant setbacks and loss of data and assignments to students.

Availability of adequately performing computer visual literacy workstations at the VRC is critical for fulfilling its mission and responsibilities towards students.

Challenge(s) this project will address:

"Ensuring technology is part of every CSU student's learning environment" has been identified by the CSU 2025 Graduation Initiative as a one of the critical factors for increasing graduation levels.

The Visual Literacy Working Stations will help to transform the Visual Resource Center into a "functioning organism" encompassing the full range of information resources and services needed to support visual learning and teaching. This project will allow the VRC to meet new user needs, to take advantage of emerging technologies, and support changes in visual literacy pedagogy.

Alternate solution(s) should this project not be funded:

The VRC will continue to use its obsolete computer resources with their constantly declining capabilities.

Impact(s) if this project is not funded:

The VRC will not be able to advance its resources, which will have direct impact on the efficiency and the ability to support student needs. Access for Art and Art Education students to modern computer stations and applications will be limited. The newly implemented the VRC Image Database will be underutilized as well. Thus the contribution of the VRC to the CSU 2025 Initiative will be considerably limited.

Cost: $$ (One time or recurring)

$26, 000 (One time purchase)

What are your intended Process Outcomes and/or Student Learning Outcomes?

Upgrading the Visual Literacy Working Stations at the VRC will have direct impact on:
1. Restoring the functionality of the VRC computer resources
2. Provide teaching and learning resources for interdisciplinary use of visual literacy and multimedia tools for academic use
3. Increasing the utilization and rate of completion of student Art courses assignments by allowing access to academic resources as well as to high-quality digital images for educational use
4. Access to subject-specific applications and databases required for student research
5. Providing seamless and fast access to the VRC Image Database (https://csusb.vrchost.com/)

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)
1. Track computer utilization by students
2. Track VRC Image Database utilization

Project Timeline   **Start:** 09/01/2017   **End:** 06/30/2018   **First Quarter of Student Use**   Fall 2017

Statements of support by collaborating organization(s) or department(s) (if applicable)

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/90-e26d5b6e5c3d88b316503c2dec5f362c_KandraScullin.pdf

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/67-dfddb2651cb43134cc54c6dcfd9b0fbc_Signatures.pdf

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/67-9852d659dcf33c375cfe9ec201541a86_MatthewPoole.pdf

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/99-bafebb6a8279c16fc37aa48a32fd3d74_PRF_VETI_2017-VRC-3-20.xls

CALIFORNIA STATE UNIVERSITY SAN BERNARDINO

Division of Information Technology Services

Division	Academic Affairs	John M. Pfau Library
	Campus Division **Stacy**	**Magedanz**

Total Amount Requested for FY 2018 $20,000.00

Project Title: **Thesis Digitization, Part 2**

Project Abstract:

Since 2014, CSUSB theses and dissertations have been produced in digital formats only and posted online in CSUSB's ScholarWorks institutional repository. These open-access documents showcase the scholarship of our graduate students and make it freely available to researchers all over the world. However, approximately 5,000 more theses for degrees granted prior to 2014 have existed only in hard copy in the collections of Pfau Library. The result is that the majority of our theses are available to only the few people who can use the physical copies on-campus or obtain them through Interlibrary Loan. They are also invisible to important search tools such as Google Scholar.

In 2016, the library submitted a proposal to outsource the scanning of those older theses and then post them online. The proposal was funded, but with the stipulation that all scanning must be done in-house. The first theses were posted online at the end of January and have already received a significant amount of use. As project manager, I have fielded many requests from CSUSB graduates to have their theses digitized as soon as possible, a further indication of the importance of the project.

For the project's work to date, please see http://scholarworks.lib.csusb.edu/etd-project/

Challenge(s) this project will address:

The 16-17 award instructed indicated that we should purchase a high-speed scanner and hire student workers to provide the scanning labor. This revision to the project significantly extended the time required to complete it. As originally proposed, the project would have taken no longer than 2 years; my current best estimate is 4-5 years.

Given that the VETI committee revised the project on its own initiative, we request additional funds for student workers to perform the scanning and see the project through to its completion.

Alternate solution(s) should this project not be funded:

It is unclear whether the library's budget can support funds for student workers to continue the project. Lacking budgetary support, the library might suspend the project temporarily and seek other funding sources in the future.

Impact(s) if this project is not funded:

The project will go on hiatus, with only part of the thesis collection digitized.

Cost: $$ (One time or recurring)

$20,000 one time

Student assistant wages: (40 hours/week for 40 weeks at $12/hour =) $19,200
Justification for wage: The nature of the work is both highly technical and detail-oriented. In addition, the students must be self-directed and work largely without direct supervision once they master the many steps in the workflow.

Binding cutting fees: (50 cents per volume, estimated 1900 volumes=) $800
Justification: Cutting off the bindings and covers of the thesis volumes is required in order to feed the pages smoothly through the high-speed scanner. This step was not accounted for in the committee's revised charge for the project.

What are your intended Process Outcomes and/or Student Learning Outcomes?
Increased visibility and usage of CSUSB's graduate theses.

Additional content for ScholarWorks, making it more representative of campus scholarship and publications.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)
ScholarWorks automatically keeps detailed statistics on downloads of documents from the repository. These statistics will indicate usage. They may be compared with prior library circulation statistics to indicate change in usage levels.

Project Timeline   **Start:** 07/01/2017   **End:** 06/30/2018   **First Quarter of Student Use**   immediately

Budget:
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/224-8f7ca954bb7b620f767e6f7a32f7b68b_Thesis_budget_as_submitted_17-18.xls

Division

Student Affairs
Campus Division   **Agustin**   **Ramirez**
Veterans Success Center

Total Amount Requested for FY 2018 $39,232.28

Project Title: **Operation K.I.C. (Keeping it Connected)**

Project Abstract:

Since opening, the CSUSB Veterans Success Center (VSC) at the San Bernardino Campus (SBC) and the Palm Desert Campus (PDC) has seen a consistent increase in the number of visits to the department each year. To overcome some of the challenges the VSC at the SBC has secured additional space. This space will serve as a designated quiet area and multipurpose classroom, but technology for the room is lacking. Splitting an already limited budget between the two locations makes it difficult to provide the necessary technological resources for students. Funding this project would greatly improve academic access to military affiliated students at both locations and will allow the VSC to address the following priorities: 1) Enhance academic productivity and quality for students; 2) Increase academic guidance, outreach and assistance to students at the PDC; 3) Improve and update the PDC VSC; and 4) Implement a more individualized and widely-available academic tutoring service. The VSC is requesting $39,232.28 to purchase: four computer workstations with adjustable desks and chairs; two printers, one for each location; three web cameras and a dedicated monitor for distance guidance and advising; two wide-format monitors with touch screen capabilities; four sets of headphones for the PDC location; retrofitting services for the newly acquired space to allow for the implementation of new technology; and 27.5 hours of online tutoring subscription for the two weeks before finals for fall, winter, and spring quarters.

Challenge(s) this project will address:

CSUSB's PDC is a growing institution, and with it, the number of military affiliated students who visit the VSC at that location. Throughout the academic year thus far, sixty -five percent of visits to the PDC VSC have been for the computer lab, printing services, or both. Additionally, steps have been taken by the department to reach out to volunteers at the PDC in order to assist the student assistants with their workload and serving students. The VSC is requesting $9,962.18 for two computer workstations, two adjustable computer desks, two computer chairs, a printer, and a wide format monitor. If funded, these resources will allow more students additional access to academic and study material and assist in expanding and upgrading the technological resources available at the PDC VSC.

Communication and services between the SBC and the PDC VSC are not as precise and personalized through email and phone calls when compared to in -person interactions between staff and students. In the spirit of providing identical services at both locations, full time staff members make trips to the PDC location once a week to bridge the gap between campuses and make themselves available, in person, to PDC students. However, there are many times when military affiliated PDC students require services and guidance outside the times the staff members are present at the PDC. In order to overcome this challenge, the VSC is requesting $1,595.26 for three webcams and a dedicated webcam monitor which will better bridge access and information between students and VSC staff members. One webcam will be housed at the PDC VSC, and two webcams, one for each staff member, will be housed at the SBC VSC with a monitor specifically dedicated for webcam services. The CSUSB campus computers already come equipped with two kinds of video-chat services, but many office desktops lack the required hardware to fully utilize these services. If this project is funded, these webcams will provide individualized, one -on-one interactions for military affiliated students who require assistance at the PDC during the days the VSC staff members are at the SBC. Additionally, in accordance with expanding tutoring services available for military affiliated students, the webcams will also be used to facilitate a distance tutoring service expanding the hours of tutor availability. Military affiliated students at the PDC will make distance tutoring session appointments with VSC hired tutors and vice versa. The tutoring sessions will then be conducted via the webcams, and usage and academic progress will be tracked.

Due to years of separation from an academic setting and the effects of multiple combat deployments, veterans are at risk of school failure. The VSC is requesting $ 153.26 for four sets of headphones to be used by veterans at the PDC who are challenged by noise sensitivities stemming from their combat experience. Additionally, the headphones will be used by students in conjunction with the webcam services. Utilizing the headphones in this manner will allow student-staff interactions to remain as confidential as possible and reduce noise related distractions during tutoring sessions. The SBC VSC started making headphones available to veterans in October 2016, and there has been an overwhelming, positive response to their availability. Equipment sign out sheets show that headphones are being used by military affiliated students, on average, every other day. A similar response is expected at the PDC VSC.

When each month in the 2013-2014 academic year is individually compared to each month this academic year, the VSC has seen at least a double in the number of visits. At this rate, the VSC will see a double in the number of visits again in three short years. Moreover, sixty -one percent of the visits at the SBC VSC this academic year have been for the computer lab, printing services or both. The increase in monthly visits has resulted in a drastic decline in the availability of access to the printer and the number of available computer workstations for students to use. During peaks hours, students are forced to endure longer wait times to access digital course and study materials. Often times, due to heavy academic output, the printer requires technical support to remotely clear the print logs, further increasing wait times and decreasing the availability of the resources currently offered. To alleviate this issue, additional space has been secured for use as a designated study room and quite room, but technology for the room is missing. The VSC is requesting $8,631.59 to expand the availability of computer access and printing services and meet the demand created by a larger student veteran population. With the requested funds, the VSC plans to install two computer workstations, which will be housed in a double -monitor down-view desk, an additional printer, and a large wide-format monitor to increase the academic access and output for students who utilize the newly acquired resource.

This year marks the thirtieth year since the CSUSB Bookstore building opened its doors. According to https ://ourworldindata.org/technological-progress/ , technological advances have been increasing exponentially since the turn of the last century; rendering the bookstore building technologically obsolete. Moreover, the VSC is located in the basement of the bookstore, which was initially intended only for storage. The newly acquired space is still used for storage today. As a result, this space is devoid of basic structural elements like electrical outlets, phone jacks, and network connections, which are essential to power today's technology. In an exponentially growing technological world, access to power, the internet, and other networks is integral for everyday operations. This demand is amplified in a university setting where internet and computer based communications, research, and assignments are crucial to student success. In order to overcome the issues listed above, the VSC is requesting $ 15,000.00 to retrofit the study room with the essential technological outlets and connections to ensure military affiliated students can use the technology incorporated into the study room.

Conventional methods of tutoring do not always meet the unique academic demands of the military affiliated population. Many of these students are heads of households and /or work full time which drastically limits the time available to study. This results in non -typical hours in which military affiliated students are studying and require tutoring services. Additionally, the Testing and Tutoring Center has selective times and days for specific disciplines which change quarterly, and student tutors are often studying for their own exams when military affiliated students require the tutor's assistance. To overcome these challenges, the VSC has implemented late hours during the two weeks before finals. However, in order to expand the hours of academic tutoring services offered outside of regular times, and supplement the VSC's late hours, the VSC is requesting $900.00 for 24 hours of online tutoring services for military affiliated students at the SBC and PDC to access the two weeks before finals for the fall, winter and spring quarters.

Alternate solution(s) should this project not be funded:

Should this project not get funded, the VSC will consider incorporating a policy which will limit the amount of time students may use the computer workstations and printing services at the PDC and the SBC VSC. The VSC will also look to non-technological services to better guide and inform students at the PDC who require the VSC staff's personal attention. If technological renovation funds cannot be secured, the VSC may have to repurpose the secured space as only a quiet room, putting a strict limitation on the functions of the room. The VSC will continue offering tutoring services and providing guidance and information through standard applications, such as appointment only and designated walk in times.

Dedicated to providing the best services and resources to students, the VSC staff employs a variety of methods to continuously seek out and procure additional funding sources to ensure the sustainability of the VSC. To that end, VSC personnel have been working with a university development director and a philanthropic grant specialist to procure private donations and foundation grants to support VSC operations. Becoming familiar with certain websites has also been instrumental in finding and competing for grants funded by federal agencies. Furthermore, the center solicits donations four times a year at specific VSC events, and as of March 1, 2017, there is a direct link to donate to the VSC through CSUSB's Philanthropic Foundation on the Military Corner website. Partnerships and networking are another potential source of funding. Event costs can be shared with veteran serving organizations in the community that benefit from the research or services the VSC provides. Recently, the VSC staff began networking with colleagues in the field of veterans' education/affairs to learn about new funding opportunities. Through those connections, VSC personnel generates a list of agencies that have grant funded programs, visit their websites to find the funding agency, and finally, research the funder's priorities to determine if they fit the VSC's mission. By harnessing as many financial opportunities as possible, the VSC can implement the required technological devices and services that military affiliated students need.

Impact(s) if this project is not funded:
Military affiliated students who use the VSC at the PDC and the SBC have come to depend on the computers and printing services the VSC provides. The steady growth on both campuses has forced students to endure prolonged wait times for access to these services. Students may be turned away from technological services, or worse, voluntarily stop using the VSC if they are unable to reliably access and print their academic material. During peak hours of operation in the computer lab, students often contend with a myriad of printer problems. The printer cannot handle the demand, overheats, and slows down. Paper jams regularly and frequently occur during periods of increased use. The printer also functions as a scanner and copier, further increasing the demand for its use. Without the additional computers and printers at both locations, student productivity is projected to diminish; preventing students from conducting research, or completing and submitting assignments, projects or papers in a timely manner. When the common computer lab printer malfunctions, staff and student assistants allow students to print to the staff printer, which reduces departmental work flow, especially during heavy traffic hours.

Without the necessary technological renovation funds, students who utilize the quite /study room will be required to bring their own electronic devices to study with or use analog study materials. With CSUSB's growing online presence, it is fundamental that students have readily available access to computers and a reliable internet network connection when using electronic academic services at the SBC and the PDC . Professors constantly warn students to have a stable and reliable internet connection when completing blackboard assignments. However, there are many times when students are unable to successfully login to the CSUSB network on their own personal devices, or their wireless personal device cuts in or out of the network in the VSC space. Without dedicated and hard -lined internet connections, students risk losing internet connection and thereby risk losing access to academic material. Moreover, students who utilize the study /quite room will be required to use the common computer lab printer, which again, puts the printer at risk of being overloaded. Adding a printer specifically for the new space, and an additional printer at the PDC, will alleviate the workload of the printer already in place, allowing for greater access to academic material and a greater amount of academic workflow being produced.

Without the requested online tutoring service, the students who are in the most need, will be forced to move their schedule to times when tutors are available. If this cannot be done, and all other reasonable and available accommodations have been made, the students will be required to study without the use of tutors. For students who have more flexible schedules, the VSC will continue to hold traditional tutoring sessions at both locations. Tutors will be available at select times for students to utilize during the regular academic quarters, to include an on -call type tutoring service and tutoring by appointment to most effectively assist military affiliated students who are struggling in classes.

Cost: $$ (One time or recurring)
$39,232.28

What are your intended Process Outcomes and/or Student Learning Outcomes?
1. Increase the availability and use of VSC computers on both campuses.

2. Increase the availability of printing services at both locations.

3. PDC student veterans will use webcams, monitors, and headphones to receive advising and referral services from the SBC VSC staff.

4. Military affiliated students will use the online tutoring subscription to receive help with classes outside of regular business hours.

5. Headphones will be available for military affiliated students at PDC.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

(1.1) The VSC will track computer usage through sign in sheets and compare the number of military affiliated students using the computers during the current academic year to previous academic years.

(2.1) Monthly, the VSC will run printing diagnostics to compare the number of documents printed each month.

(3.1) The VSC will track the number of online advising appointments through the outlook calendar.

(3.2) The VSC will track the number of referrals made through the tickler system, and compare it to previous academic years.

(4.1) Daily, during the two weeks prior to finals when the tutoring subscription is available to students, the VSC staff will monitor the number of hours used, and the hours remaining.

(5.1) The PDC VSC will track the use of headphones through equipment sign-out sheets.

Project Timeline   **Start:**   06/19/2017   **End:**   06/18/2018   **First Quarter of Student Use**   Fall 2017

Budget:
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/90-c3c88ef7bc8900a9bfe7d571aa945e60_2017_-_VETI_VSC_Operation_KIC_Budget.xls

Division	Information Technology Services
	Campus Division **Mihaela** **Popescu**

Total Amount Requested for FY 2018   **$36,131.72**

Project Title: **Virtual Reality Lab for Producing Engaging Instructional Content**

Project Abstract:

Purpose

This project will build a virtual reality (VR) lab in which faculty, instructional designers, instructional technologists, and students, working together across disciplines, will research, produce, test, assess and implement VR-enhanced content and simulations (e.g., VR educational games, virtual trips) in order to create learning experiences that are engaging, realistic, and impactful.

Rationale

Virtual reality (VR)--immersive computer-generated environments that simulate the physical presence of people and objects using realistic sensory experiences --will revolutionize education because it addresses three distinct gaps in the classroom: the attention gap by creating engaging environments; the relevancy gap by providing training for real-life situations; and, the pedagogy gap by enabling learning in naturalist settings. Because VR is at the cutting edge of education, best use practices are yet to emerge. It is tremendously important that educators and students learn together how to use VR to produce compelling instructional experiences that are pedagogically effective and inclusive of all students. It is also very important that CSUSB creates courses that teach students how to work in the VR medium, thus improving the marketability of our graduates.

Impact on learning

Research demonstrates significant educational benefits from VR-enhanced educational experiences: increased student motivation for learning; better social integration of learners via improved collaboration; improvement in expert knowledge; equal retention of information across a variety of learning styles; improvement in creativity. This project will allow the creation of impactful and inclusive educational experiences that will improve student learning, thus ultimately contributing to student success and supporting the 2025 graduation initiative.

Challenge(s) this project will address:

1. VR technologies are set to mature within the next three years, but our campus has no VR-equipped facility. If our campus does not build an infrastructure for these technologies, we will not be able to take advantage of their affordances, and our students will not be able to benefit from these new ways of learning.

2. Simulations using VR create unique learning experiences that students cannot access in any other way. For example, Pennsylvania State University uses VR to enable engineering students to virtually assemble objects. Case Western Reserve University, in partnership with Cleveland Clinic, is currently developing a holographic medical anatomy curriculum, while Kingston University and St George's University of London have already opened jointly a Paramedic Clinical Simulation Center. Several programs on campus will benefit enormously from the creation of VR-enhanced simulations, for example simulations of various situations of patient care for Nursing, simulations of archeological digs for Anthropology, simulation of extreme nature conditions in Geography, and impactful news stories for Coyote Chronicle. See attached letter of support.

3. VR is being widely adopted in a variety of industries, from news and film production to medicine and engineering. To prepare our graduates to be competitive in the marketplace, we need to develop courses and learning experiences that will teach our students to work with VR technologies. For example, in cinematography (to give but an example), filming in VR requires a different approach to storytelling, pre- and post-production, or editing. By the time our students graduate, VR cinematography will be the new normal and students who have already mastered the medium will have an edge. Learning how to work in this medium will make our students significantly more employable.

4. CSUSB does not have a structure for project-based faculty-student collaboration across disciplines. Currently, Producing VR content requires not only infrastructure, but also interdisciplinary collaboration. This lab is a place where faculty and students from different departments can collaborate on projects such as a VR educational game, a VR-enhanced news story, or a VR-enhanced simulation with direct application in the classroom. By building this lab, we also seek to create a proof-of-concept model on how educators and students from different disciplines can work together.

5. VR technologies are as yet insufficiently researched. The lab provides a space for collaboration among educators, instructional technologists and students to identify best practices in using VR in the classroom. For example, we need to research when these technologies produce unintended secondary effects (e.g., dizziness), how to make these technologies fully accessible, and under what conditions a VR-enhanced lesson will have maximum impact on learning. The lab is a place where this research can be conducted.

Alternate solution(s) should this project not be funded:

Some "boutique" VR content of limited applicability could be produced in the long run if financed by a department. For example, the Department of Communication Studies or the Department of Art could invest in the purchase of equipment to produce VR-enhanced content to meet departmental needs. However, such a project will (a) drain departmental resources that could more productively be invested elsewhere; (b) lock-in the equipment for exclusive departmental use, thus preventing other faculty and students from using it; (c) produce content of limited applicability which will not benefit from interdisciplinary expertise; (d) take so long to produce content so as to virtually guarantee that either the content or the equipment or both become obsolete by the time the project is ready.

Impact(s) if this project is not funded:

1. The campus will be unprepared to adopt the VR-enhanced educational content that will emerge elsewhere within the next three years.
2. Students will not be able to benefit from new ways of learning that have been shown to increase understanding, information retention and engagement.
3. Students will not be competitive in the marketplace.

Cost: $$ (One time or recurring)

One time cost: $36,131.72 Please see budget below:

I. Category: VR Production gear

Qty	Item	Cost/unit	Total
1	gopro omni (all inclusive)	$5,000.00	$5,000.00
2	Samsung Gear 360	$227.00	$454.00
2	Gear 360 protective case	$15.00	$30.00
2	Editing station furniture	$300.00	$600.00
2	Alienware Laptops	$2,099.00	$4,198.00
1	Equipment Rack	$3,000.00	$3,000.00
1	HP Sprout Pro all in one 3D scanner, projector and pc	$2,231.00	$2,231.00
2	External SSD 1-3 TB	$2,000.00	$4,000.00
2	Ambeo VR microphone	$1,649.95	$3,299.90
2	Samsung replacement battery	$35.99	$71.98
	Subtotal		$22,884.88
	8% tax		$1,830.79
	TOTAL		$24,715.67

II. Category: Testing, mass use, semi-immersive

Qty	Item	Cost/unit	Total
2	iphone 7	$600.00	$1,200.00
2	Samsung Galaxy S7	$450.00	$900.00
10	Samsung Gear VR	$79.00	$790.00
	Subtotal		$2,890.00
	8% tax		$231.20
	TOTAL		$3,121.20

III. Category: Testing, mass use, fully immersive

Qty	Item	Cost/unit	Total
2	Oculus Rift 3 Bundle w/touch and headphones	$870.00	$1,740.00
2	HTC Vive	$800.00	$1,600.00
2	Oculus Gear VR	$80.00	$160.00
2	google cardboard	$10.00	$20.00
2	PS4 w/VR launch bundle	$1,000.00	$2,000.00
	Subtotal		$5,520.00
	8% tax		$441.60
	TOTAL		$5,961.60

IV. Category: Software

Qty	Item	Cost/unit	Total
2	Final Cut Pro X 2 licenses	$300.00	$600.00
2	Adobe Premiere 2 licenses	$360.00	$720.00
2	Unity 3D Licenses	$420.00	$840.00
	Subtotal		$2,160.00
	8% tax		$172.80
	TOTAL		$2,332.80
	GRAND TOTAL		$36,131.27

What are your intended Process Outcomes and/or Student Learning Outcomes?

Process outcomes:
1.1 Create new courses dedicated to teaching VR-specific skills to students, thus improving the marketability of students;
1.2 Create VR-enhanced instructional material;
1.3 Create VR-enhanced media for Coyote Chronicle and promotional material for the campus;
1.4 Increase student engagement with education, thus contributing to student success;
1.5 Create internship opportunities for students in the VR lab for the acquisition of new skills;
1.6 Create a proof-of-concept model of transdisciplinary collaboration on project-based learning;
1.7 Generate new knowledge on the impact of VR in education.

Student learning outcomes:
2.1. Create new ways to teach and learn;
2.2. Produce experiences that transcend language barriers and enhance student access;
2.3. Improve experiential learning by simulating experiences unavailable by other means;
2.4. Acquire skills for producing content in the VR medium.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)
Annual assessment will be conducted regarding the operations of the lab by analyzing the following KPI's:

Process outcome KPI's:
1.1 Number of new courses teaching VR development skills
1.2 Number and quality of VR-enhanced instructional materials created
1.3. Number and quality of other VR-enhanced materials used by the campus
1.4. Improvement in student engagement as measured by a before- and after-survey in a pilot class using VR technology
1.5. Number of internships and student satisfaction with them
1.6. The development and testing of a collaboration process among faculty, students, instructional designers and instructional technologists
1.7. Number of manuscripts and conference presentations on the impact of VR on learning

Student learning KPI's:
2.1. Improvement in student engagement with instructional content. ATI will develop an assessment instrument (e.g, reflection prompt or survey)
2.2 through 2.4: Faculty assessment of student performance

Project Timeline   **Start:** 07/01/2017   **End:**   07/31/2018   **First Quarter of Student Use**   Fall 2018

Budget:
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/78-a532a23983219a2a8ded3e623cdc4272_VETI_BUDGET.xls

Palm Desert Campus (PDC)   **Patricia**   **Weyand**

Total Amount Requested for FY 2018   **$17,425.00**

Project Title: **PDC - Coyote Radio Station**

Project Abstract:

This project is to create a CSUSB-Palm Desert Campus version of San Bernardino campus' Coyote Radio. It will be used as a practicum for our Communications students. It will provide training for our students in broadcasting and communications. It will also provide opportunities for our Marketing, Graphic Arts and Business students to learn how to create ways to promote and sustain the station. This radio station will serve to broadcast music, local happenings (both on campus and in the Coachella Valley), public affairs, special interest pieces, educational shows, intercollegiate sports (future) and perhaps distance learning classes. The project will provide the campus with an additional vehicle to engage our community by broadcasting events held on the campus. The radio station will be a blend of music, technology and education, delivered through online streaming on the internet. We will be foregoing the traditional FCC licensed radio station and not be initially applying for an FCC broadcast license. We are unofficially referring to the station as KPDC. The format will be determined by the students, faculty and staff, to insure success and engagement. This station will be run and programmed by the students. We want this radio station to be the anchor for Media Arts to be offered her in the future.

Challenge(s) this project will address:

There are several challenges to this project:
 1) Locations: the Palm Desert Campus is limited on space and therefore rather than building a sound booth, we will be using an existing office /studio space. The equipment and software will allow us to use directional mics and allow the student to record some sessions, that can be reviewed and later broadcast.
2) Lacey Kendall, from San Bernardino campus has offered to assist us with some of the initial work, as this is a new endeavor to this campus.
3) Training from the software vendor will be required, the software that San Bernadino uses is no recommended to be use initially.
4) The course sessions will be offered in Fall 2017, and therefore the equipment installation and training will need to take p[lace as soon as possible.

Alternate solution(s) should this project not be funded:

Dean has offered to fund part of the project, which will allow us to offer the courses but may not be able to offer the practicum.

Impact(s) if this project is not funded:

Students will continue to have limited options for core and elective courses.

Cost: $$ (One time or recurring)

$17,425.00

What are your intended Process Outcomes and/or Student Learning Outcomes?

Student Learning Outcome 1- Student Success: Addition of Communication courses with radio /broadcasting practicums. Student Learning Outcome 2- Student Success: Career/Educational development in Communications, Marketing, Graphic Arts, Public Relations and Business, contribute to CSU's Graduation Initiative. Process Outcome 1- Student Success: Increase student's sense of belong, engagement and inclusion,
Process Outcome 2-Community Engagement: Promote the campus, promote higher education, and promote events (on and off campus) to bring awareness to the community of the services and events that are offered at PDC.
Process Outcome 3- Identity: Continue to brand the California State University-San Bernardino, specifically the Palm Desert Campus.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

Measurement of Student Learning Outcome 1: Track numbers of students that enroll in the courses relating to radio station. Measurement of Student Learning Outcome 2: Track time to graduation for students in Communication, Graphic Arts, Marketing and Business Administration, that are also enrolled in the course. Measurement of Process Outcome 1: track increase in number of students involved in activities on campus, promoted by radio station. Process Outcome 2: Track increase of community member attendance for onsite campus events. Process Outcome 3: Track increase in Palm Desert Campus branding/awareness, through increase on number of events held on campus.

Project Timeline   **Start:** 06/01/2017   **End:** 09/08/2017   **First Quarter of Student Use**   Fall 2017

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/165-0519f4ff2d4322f828577dccb6dd41b8_PDC_Radio_Station_VETI_BUDGET.xls

Division			
	Academic Affairs		College of Natural Sciences
	Campus Division	**Arturo**	**Concepcion**

Total Amount Requested for FY 2018 $100,000.00

Project Title: CSUSB Mobile First Strategy: Standardization and Streamlining of Mobile Application Development

Project Abstract:

This proposal is a combined effort between the Administrative Computing & Business Intelligence, ITS, and the School of Computer Science & Engineering, CNS. The mission of the proposal is to adopt a mobile first strategy in CSUSB to standardize and streamline the development of mobile applications. Since 2012, the Mobile App Development (MAD) Team has been the sole developer of mobile apps in campus. See the apps they've developed and currently developing in https://mobileapps.dev.csusb.edu/about.

Unfortunately, there is a lack of standardized strategy to develop mobile apps by the MAD Team. In the early years, the team used PhoneGap framework that later became obsolete. Currently the development strategy is to use native code and operating systems to build mobile apps for specifically iOS and Android to avoid using PhoneGap or another framework. But this cause the MAD team to always start from scratch when developing a new mobile app project. Another problem is the lack of seamless connectivity to the PeopleSoft system and database. Several campus mobile apps need this access to PeopleSoft to provide better service and utility to students. The goals of the grant are two folds: The first goal is to continue to provide CSE and ART students the knowledge and training on applying software engineering principles and practices to the development of software projects through the MAD Team. And the second goal is to improve the development process of the MAD Team through the use of a commercial mobile app development platform.

Challenge(s) this project will address:

There are various challenges this project will address:

-- Lack of a cohesive strategy for mobile applications development in CSUSB.

Currently, each office/unit in campus or external clients vie for a slot in the CSE 455 software engineering class in winter quarter term to be included as a mobile app project in that class. There are usually ten development teams formed in the class and so there is a maximum of 10 mobile app projects that can be developed. During the rest of the academic year, the MAD Team accepts requests for development of mobile apps. The acceptance of the mobile app requests is done in an ad hoc manner and there is no determination of the priority of the request.

-- Lack of a standard platform to build mobile apps.

Currently, all mobile apps used native code and native operating systems of the mobile phone where the app will be developed, these are usually the iOS and Android operating systems, which together comprised 96% of all users of mobile smart phones. So every time, a new mobile app project is begun, we always begin from scratch and there is no standard procedure to follow that allows the reuse of building blocks from previous mobile apps.

-- Lack of seamless connectivity to PeopleSoft.

The lack of APIs to connect with PeopleSoft to access data and student records causes enormous delays in the development of mobile apps that could provide service to students. If the APIs are simple, perhaps ITS staff can write it, but if the API is very complex, it can't be done and so there is no way to build the mobile app. This restriction limits the mobile apps that the MAD Team can develop to serve students.

-- Maintenance of the mobile app becomes a nightmare because each developer must understand what was done before by another developer.

One of the most difficult phase of software development is maintenance. Mobile apps should be maintained because of changing requirements, improving functionalities, updating the operating systems, updating the development systems and languages, and updating the mobile phone hardware. If these are not addressed the mobile app will not be very useful or worse, crash. Since the MAD interns are students themselves, they graduate and move on and new interns are hired to continue their predecessors' work. The hardest part of maintenance is reading and understanding legacy source code, especially if the source code was written by another developer.

-- Lack of integration capabilities to tie several mobile apps together for efficient distribution and deployment.

Another challenge is the lack of a process or a method to integrate existing mobile apps into a single integrated mobile app. There are instances when several mobile apps can be integrated into one app for convenience. An example are the apps: TourCSUSB, CSUSB Dining, Campus Safety, and Student Advising. If all these smaller mobile apps can be integrated into the CSUSB Mobile, it will provide more service to the students in campus rather than downloading 5 different mobile apps.

Alternate solution(s) should this project not be funded:

We have been developing the mobile app, CaseAide, for over two years and this year, our client, Michael Edwards, CEO CaseAide Inc., has an offer to the County of San Bernardino for 400/700 social workers users. See Appendix A, for a copy of the offer to the County of San Bernardino. Since this is a government office, we don't know when the deal will be finalized. It could go to a bidding process that could take months to resolve. If this deal will be successful, it could generate the revenue we need to support the MAD Team.

Impact(s) if this project is not funded:

If this proposal will not be funded and we are unsuccessful in generating revenue, the MAD Team will be dissolved. The software engineering course (CSE 455) will lose a valuable asset in teaching this course. The student interns act as consultants and experts for students in this course to develop their own mobile apps. The university will lose an important asset in enhancing the education and training of CSE students in the application of software engineering principles and practices in the development of mobile apps and ART students to provide valuable experience in UI/UX design.

CSUSB will also loose the capability to develop mobile apps for its needs and the students' need. Since the MAD Team is the only entity that develops mobile apps for the campus, ITS will need to hire at least two mobile app developers. A conservative estimate for a career level programmer at CSUSB, the salary would be about $7,200 a month plus benefits at 56% which is $4,032 for a month or $11,232 * 12 = $134,784 for a year. So for two programmers, the total cost will be $269,568 a year.

Cost: $$ (One time or recurring)

Total budget requested = $ 100,000

- • $ 50,000 – Salaries of eight MAD interns for one academic year.
- • $ 50,000 – Cost of a commercial platform development tool.

What are your intended Process Outcomes and/or Student Learning Outcomes?

Process Outcomes.

The process outcome of the CSUSB mobile first strategy is the standardization and streamlining of the mobile app development process of the MAD Team. This is accomplished by the purchase of a commercial platform development tool that will be used by the MAD Team interns. This will result in a policy for determining the priority of mobile app projects applying to the MAD Team for development. The use of the commercial platform development tool will provide the MAD Team a reusable framework with which to build future mobile apps and a seamless connectivity to PeopleSoft.

Student Learning Outcomes.

The students in the software engineering course, CSE 455, will have the knowledge and experience of using a commercial platform development tool. The MAD interns will transfer their knowledge in the use of this tool to the students of CSE 455. They will also learn the technologies and languages that are used in mobile apps. These will be valuable skills and assets when the students will search for a job after graduation.

The mobile app CaseAide is currently being used in the Department of Social Work, College of Social and Behavioral Sciences, in the courses: SW 400 (Social Work Practice) and SW 401 (Field Work), which are taught by Michael Edwards, CEO of CaseAide, Inc., and adjunct faculty in the Department of Social Work. His students are using the app to apply to their case studies and field works practice. See letter of support from Professor Edwards in Appendix B.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

KPI 1:

Formulate a cohesive procedure and practices for mobile applications development through the use of a commercial platform development tool.

KPI 2:

Formulate a strategic mobile policy on accepting requests for mobile app development for use in the campus, including commercially viable mobile app projects.

KPI 3:

Count the number of new mobile apps developed in 2017 using the platform development tool. Currently developed or being developed mobile apps, both for campus use and commercial apps, are found in https://mobileapps.dev.csusb.edu/about.

The following mobile apps and clients have been prototyped in CSE 455 winter 2017 and several projects are planned to be continued starting spring 2017:

1.   Workability IV (campus app)
2.   SOS (commercial app)
3.   Accessibility (campus app)
4.   Student Assistance in Learning (SAIL) (campus app)
5.   Princess Dulce (mobile game)
6.   Project Station (commercial app)
7.   CircuitSnap (educational app)
8.   MBA Passport (campus app)
9.   Student Assist (campus app)
10.   RoomQuest (campus app)

KP4:

We intend to continue developing the Student Assist mobile app project, which was started in CSE 455 winter 2017, see above list. This mobile app will guide a student starting from being a prospective student, to being a student in CSUSB, to graduation, and into alumni status. It will provide a complete student guide to graduating in time with the least delays.

KP5:

For student learning outcomes, we will conduct a survey about the use of mobile app projects in the lab. The results will be analyzed if the students learn from the development of mobile apps and find if the skills they have acquired are useful.

KP 6:

We will report on the number of students in CSUSB being influenced by the MAD Team and the mobile app projects that the MAD Team is developing. Currently, the students in CSE 455 (Software Engineering) are directly influenced by this proposal with about 60 students in computer science & engineering. The courses SW 400 (Social Work Practice) and SW 401 (Field Work) have about 15-30 students in social work each quarter term are using a mobile app developed by MAD. Art students in the course ART 575 (Internship) is providing experience to students in the field of UI/UX design, an important component of any mobile app design. So far, we have asked business students in cybersecurity and marketing, for testing security and writing a business plan for apps we are developing, which could expand very rapidly in the future.

Project Timeline   **Start:**   07/01/2017   **End:**   06/30/2018   **First Quarter of Student Use**   Summer 2017

Statements of support by collaborating organization(s) or department(s) (if applicable)
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/21-8962b01f9ee9f40ce1d0c5d4187ea6f4_LetterOfSuppotMEdwards.docx
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/99-ec44a64c20aae58884a38bebad55cf9e_CaseAide_RFQ.pdf

Budget:
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/165-58a8d95944b6805aadd79695f5d4d189_VETI_budget_2017.xls

Division

	Academic Affairs	College of Natural Sciences
	Campus Division	
	Codi	**Lazar**

Total Amount Requested for FY 2018　　$99,000.00

Project Title:　　**A new scanning electron microscope for exploring the micro-universe**

Project Abstract:

For over 25 years, the College of Natural Sciences (CNS) had previously maintained a scanning electron microscope (SEM), now at the end of its useful life. An SEM is a fundamental tool in the natural sciences because it allows students to explore otherwise hidden microscopic worlds at magnifications and resolutions far beyond the capability of a regular optical microscope. There are myriad applications: a biology major might use an SEM to look at cellular structures, a geology major might use it to look at microcrystals, and a chemistry or physics major might use it to look at microtextures in novel synthetic materials. However, the lack of an in-house SEM is forcing students to use instruments at other institutions or, worse, abandon microscopic projects altogether. On behalf of students from multiple departments within CNS, we seek funding for a new SEM unit: a Phenom XL. This particular unit is remarkably easy to use and student-friendly, and will turbo-charge student research. The Phenom is also networkable and can be used remotely by professors to provide high-impact, real-time classroom micro-demonstrations, e.g., a biology class could "tour" a brain cell. The unit is small enough to fit on a desktop, ADA compliant, and would be housed in the existing SEM facility in the Biological Sciences building. Most users would be CNS majors or archaeology students, but the instrument would be available to any CSUSB student with an appropriate project.

Challenge(s) this project will address:

Microanalysis is not a luxury. It is an absolutely essential component of a standard, modern scientific education. However, CSUSB students cannot currently perform microanalytical procedures on campus. To compensate, students are currently forced to request (beg) to use SEMs at other regional institutions such as Cal Poly Pomona, UCR, and Pomona College. This is more than an issue of institutional pride: our students lose travel time and must typically pay out-of-pocket for fuel and parking. Our students are also given inconvenient and/or limited machine time, suffer from diminished status and lower priority as external users, and may even be charged user fees.

The use of outside institutions relies on the goodwill of their faculty and staff, and this cannot last forever. Non-CSUSB professors are not in the business of indefinitely helping CSUSB students for free, and at some point we will wear out our welcome, which effectively means that there will be little to no SEM access at all.

Another unfortunate challenge with the lack of an in-house SEM is that it is currently impossible to use microanalyses for time-sensitive decision-making during the scientific process. For example, if a student is performing an experiment, he or she needs immediate analyses of the results to determine the best course of action for subsequent steps, which may need to occur within hours or even minutes. In the current configuration, students could lose days, weeks, or even months while waiting for an open date at another institution. There are many time-sensitive projects that would be adversely impacted by such delays, or would be altogether impossible.

An indirect challenge addressed by this particular SEM model, the Phenom XL, is that complex scientific instruments are usually difficult for students to learn how to operate. However, several members of the CNS faculty have tested the Phenom XL and were amazed at how easy it is to use. It is almost as simple as flipping a power switch, which will have the effect of substantially increasing the number of independent student operators. Moreover, because of its simple operation and desktop size, the Phenom is ADA compliant, ensuring all students have access to cutting-edge technology in the classroom and in their research projects.

Alternate solution(s) should this project not be funded:

The immediate alternative is to continue to send students to other institutions. A senior geology student recently used the machine at Cal Poly-Pomona, which cost two weeks in wait time, a half-day in lost time due to travel plus parking and fuel paid by the student, not to mention the awkwardness of asking non-CSUSB faculty for help. Another student is currently requesting access to the SEM at Pomona College. Because both of these projects depend on microanalysis, we remain dependent on the mercy of these other colleges.

One longer-term alternative would be to seek complete funding from the National Science Foundation, where success would be highly uncertain (<10% chance) due to the limited funding and highly competitive nature of the grant process. Furthermore, the NSF funded an upgrade to the old SEM 9 years ago, giving our institution lower priority for funding a new SEM. In the best-case scenario, due to the grant writing timeline and federal funding timelines, it could take at least two years until a machine is ready for student use. In contrast, a successful VETI grant would lead to a new SEM installed by Summer 2017.

A third alternative is to petition the CNS Dean for full funding, which would be highly unlikely because of current budgetary constraints. Even if the college could fund the SEM in its entirety, the funding would adversely affect student success by drawing limited resources away from many other student benefits and programs, such as hiring adjunct professors to reduce class size and availability, purchasing student lab equipment and consumables, scholarship availability, etc.

Impact(s) if this project is not funded:

Student success in the sciences will continue to suffer from a lack of basic microanalysis on campus and student research capabilities at CSUSB will be limited in a fundamental way. Student researchers will be forced to rely on the uncertain and finite goodwill of other institutions for access to alternative SEMs, and will pay travel expenses and user fees. Students will be disadvantaged in the job marketplace and in graduate school admissions by not having exposure to SEM techniques. The course BIOL/GEOL 530, Scanning Electron Microscopy, will not be able to be offered at all. Other CNS courses that would be affected are CHEM501, GEOL322, GEOL 398/399, and GEOL 550, to name a few.

Cost: $$ (One time or recurring)

$99,000 requested from VETI towards a $150,000 SEM, with the balance to be paid by College of Natural Sciences.

What are your intended Process Outcomes and/or Student Learning Outcomes?
Process outcomes:
1. SEM analytical capabilities will be available at CSUSB for research and courses
2. Students will not have to travel to other institutions

Student learning outcomes:
3. Students will learn SEM techniques in imaging and microanalysis.
4. Students will learn to present original scientific data

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)
Process outcome assessments:
1. We will keep a log book to demonstrate that the SEM is being regularly used by students
2. The log book will show how many times student travel was made unnecessary

Student learning outcome assessments:
3. Students will use SEM results in their research and class projects
4. Student work will be visible in a variety of events, e.g., departmental colloquia, CSUSB Research Competitions, CSUSB Meeting of the Minds, thesis defenses, class presentations.

Project Timeline   **Start:** 07/05/2017   **End:** 07/05/2042   **First Quarter of Student Use**   Summer 2017

Statements of support by collaborating organization(s) or department(s) (if applicable)
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/238-fd8ff1d66e6f7561627cb8181be7e714_biology-letter_of_support_for_SEM.pdf

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/99-f855648cc4a9c718fcecab925e48780b_DeanCNS-SEMletter_032117.pdf

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/238-dda154402d3427616389d3872ffef75c_geology-VETI_SEM_letterfromMcGill.pdf

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/99-de1da3a99d797ade83eff378e5c84175_Anthro-SEMsupportletterAnthro0001.pdf

Budget:
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/99-5bf6687f7599439dc130dd9e4f92f53a_VETI_BUDGET_TEMPLATE.xls

Division	
	Information Technology Services
	Campus Division **Leon** **McNaught**

Total Amount Requested for FY 2018   **$30,598.00**

Project Title: CSUSB and PDC Assistive Technology Software Licensing, Version, Support and Maintenance Unification.

Project Abstract:

This proposal will homogenize to current versions, and convert to server licensing model, all assistive software (AT) licenses that exist on campus outside of the Assistive Technology & Accessibility Center (ATAC). The locations identified that experience fragmented AT licensing are; Services to Students with Disabilities (SSD), the Veterans Success Center (VSC) both at CSUSB and PDC, WorkAbility IV, and the Pfau Library. These departments suffer the same issues; multiple versions of the same assistive software, fragmented maintenance and support, and most importantly the result is an inconsistent student experience. Once combined, upgraded to current versions, and converted to a server licensing model, all assistive software offered on campus will be a unified version and provide students that reply on AT a consistent experience. A software maintenance agreement will be budgeted to provide future upgrades. All AT on campus will upgrade simultaneously moving forward. Additionally, ATAC staff will provide technical support for all AT software licensing, installation and maintenance support. This project will impact CSUSB and PDC.

Challenge(s) this project will address:

Simultaneous versions of assistive software concurrently in use. Even in the same center, some computers have older versions of the same software because there are multiple separate licenses in use which have been upgraded inconsistently or at different times.

Inconsistency to users of assistive technology. Especially with software for the blind or visually impaired, versioning matters when interacting with content on the web. A user of JAWS 16 will have a different experience on the same website in comparison to someone using the latest version 18.

Fragmented support and maintenance. Technicians inherit responsibility for assistive software but are often unaware of the nuances of software support. An example of this are the settings that ZoomText requires with Adobe Reader. This level of support is not being executed at this time. Further, often little to no immediate support is available to users of assistive technology, this proposal will have a central technician support assistive software on campus from within the Assistive Technology & Accessibility Center. There will also be remote assistance installed on all machines housing the software to provide immediate tier 1 support from ATAC student technicians.

Campus overpaying for licensing. With unification and server centralization, the campus will receive the best possible discount on licensing as all seats are upgraded at the same time and will receive volume discount.

Underutilization of existing licenses. Current license model allows software to be installed on only the exact number of licenses that have been purchased. With server based license management, assistive software can be installed on virtually any number of campus machines, while the licensing server manages concurrent users seamlessly.

Alternate solution(s) should this project not be funded:

Proposal will be submitted to ITS based on division priorities.

Impact(s) if this project is not funded:

If this project is not funded the current level of inconsistent assistive software support and maintenance will continue. Now that the inconsistencies have been discovered, the university assumes risk in allowing campus inconsistencies to continue. Crucial assistive software provides equal access for individuals with disabilities. This proposal is essential to continue improvement for student access.

Cost: $$ (One time or recurring)

$38,446

What are your intended Process Outcomes and/or Student Learning Outcomes?

1. Increased utilization of existing assistive software licenses offered at VSC, SSD, WKIV.
2. Consistent student experience.
3. Reduced wait times for support and improved support quality for centers that provide access to the software and for students that utilize it.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

1. Demonstrate increase frequency of assistive software license usage
2. Reduced number of student complaints compared to previous year and improved satisfaction measured via survey.
3. Faster resolution of problems and improved support overall measured by survey and staff input from various centers.

Project Timeline   **Start:**   05/01/2017   **End:**   04/30/2018   **First Quarter of Student Use**   Fall 2017

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/109-363a534b785e6f9fef215a6c8bbbb4d9_CSUSB_and_PDC_Assistive_Technology_Software_Licensing%2C_Vers

Division

Student Affairs
Campus Division
Workability IV

Alonso   **Curiel**

Total Amount Requested for FY 2018

$12,310.00

Project Title:

WorkAbility IV Technology Initiative

Project Abstract:

WorkAbility IV (WAIV) is requesting $12,310 to expand its career services by building the capacity of CSUSB students with disabilities to use assistive technology (AT). WAIV provides enhanced career preparation services to 300 CSUSB students with disabilities to obtain gainful employment within their academic major and job retention. Mastery of AT can be vital to obtaining competitive employment by bridging the gap between a person's physical/cognitive abilities and job duties. Upon graduation, students with disabilities often end up in low-level jobs in part because of an underutilization of AT caused by a lack of information on available technology and training on how to use devices. WAIV proposes to purchase 25 Livescribe Smartpens and 60 specialized notebooks that will be checked out to students. Users will complete an online Smartpen course and a module on notetaking created by staff. The Smartpen enables users to record lectures and synchronize the recording with the notes that they take, which provides a targeted way to review notes. Additionally, students who are deaf/hard-of-hearing face significant communication challenges, which prevent them from engaging in the student experience and affect opportunities for competitive employment. WAIV proposes to purchase one iCommunicator software kit to facilitate communication for students who are deaf/hard-of-hearing. By combining technologies that convert spoken words into sign language, voice into text, and text into speech, students can communicate with the hearing world when a sign language interpreter is unavailable. Ultimately, this proposal builds students' independence and capacity both academically and in the workplace!

Challenge(s) this project will address:

More than three quarters of college graduates with a disability fear they will be discriminated against by potential employers (Students are Afraid to Disclose Disabilities to Potential Employers, n.d.). According to Ahmad's article, Use of Assistive Technology in Inclusive Education: Making Room for Diverse Learning Needs, "Students with disabilities are found to be frequently trapped in a vicious cycle of exclusion from education, society and mainstream development programmes due to lack of necessary support and the means for equal participation" (Ahmad, 2015). For individuals with disabilities, mastery of assistive technology (AT) can be vital to successfully completing a college degree and obtaining competitive employment because it helps to bridge the gap between people's physical/cognitive abilities and job duties by providing a mechanism that enables them to function more independently. This proposal addresses overcoming barriers to notetaking and verbal communication that students with disabilities face by employing AT and user trainings.

Peer notetaking services are one of the most commonly used accommodations for students with disabilities, but an examination of the student experience with respect to these accommodations uncovers barriers to student success. Students report that peer notetakers fail to turn in their notes timely, do not take comprehensive notes, forget to include important subject matter or do not submit legible notes. Moreover, while the use of a peer notetaker is beneficial to students while they are in college, when they join the workforce, an employer is unlikely to provide this as a workplace accommodation. The Smartpen is an ink pen with a digital voice recorder that indexes the audio recording based on the handwritten notes in the Livescribe notebook, effectively integrating notetaking and audio recording (Livescribe.com, n.d.). A student diagnosed with anxiety and ADD reported that prior to receiving the Smartpen, "When I miss something, it creates an enormous amount of anxiety for me" (Computerized pen helps students with disabilities in unexpected ways, 2011). Smartpens capture everything students hear and write so they can be confident that they will not miss anything. The Livescribe Echo Smartpen, coupled with user training proposed under the VETI initiative, will build the capacity of individuals to take their own notes.

In addition to the barriers associated with notetaking, students who are deaf or hard-of-hearing face significant communication challenges, which prevent them from engaging in the student experience and affect their opportunities for competitive employment. The U.S. Census Bureau reports that the deaf and hard-of-hearing population is approximately 28 million people; of that, over 4 million are profoundly deaf. The vast majority of profoundly deaf students leave the U.S. public education system with less than a sixth grade reading level and suffer from lack of education or career opportunities (Mitchell, E. Ross, 2011). Services to Students with Disabilities (SSD) currently serves 58 deaf and hard-of-hearing students, and WAIV anticipates that the number of deaf and hard-of-hearing students the WAIV program serves will increase due to a collaborative effort with the California Department of Rehabilitation. In light of this, WAIV staff will require the ability to communicate with deaf and hard-of-hearing students on a regular basis. Currently, CSUSB students who are deaf or severely hard-of-hearing must request an interpreter with 72 hours advance notice. Through iCommunicator, WAIV will be able to incorporate AT that will promote independent communication for students who are deaf or hard-of-hearing (icommunicator.com, n.d.). This solution facilitates real-time conversations by combining technologies that translate or convert spoken words into sign language, voice into text, and text into speech. iCommunicator will enable students who are deaf to communicate with the hearing world when a sign language interpreter is not available. In addition, the device will help them improve their literacy levels by "translating" English in a variety of ways and through a built-in dictionary and thesaurus where users can obtain definitions or perform internet searches to gather more information on words and phrases.

Alternate solution(s) should this project not be funded:

Although staff has identified assistive technology as a critical need to build the capacity of the students that the program serves both academically and for future employment, the WAIV program does not have discretionary funding to purchase Smartpens or the iCommunicator software kit. WAIV staff could provide students with notes; however, the program is limited by a small staff and this action would not build the capacity of students to take their own notes. Another solution would be that WAIV staff could record presentations and meetings using a smart phone and upload the content onto a digital hub such YouTube so that students can repeatedly view it. Neither solution, however, will build a student's capacity to function independently in the classroom or the workplace, which is the goal of this proposal.

Alternate solutions for deaf or severely hard-of-hearing students would be to work with SSD to schedule ASL interpreters for all interactions with this population with at least 72 hours advance notice. For all other interactions, WAIV staff could communicate with students by writing back and forth on a piece of paper.

Impact(s) if this project is not funded:

Students with disabilities take twice as long to secure a job after graduation as compared to their non -disabled counterparts (Valles, Frernstad, & Ekman, 2015). For instance, among people ages 25 and older in 2014, 16.4 percent of people with a disability had completed at least a bachelor's degree, in comparison to 34.6 percent of people with no disability (Bureau of Labor Statistics). Moreover, of people with a disability who had completed at least a bachelor's degree, only 26.1 percent were employed in 2014, compared to 75.9 percent of college graduates with no disability (Bureau of Labor Statistics).   Of those that are successful in obtaining employment, many remain in low -level jobs. For individuals with certain disabilities, mastery of assistive technology (AT) devices is vital to obtaining competitive employment and improving work performance. Many workplace challenges can be either overcome or ameliorated by using AT; however, the WAIV program lacks the discretionary funding to purchase such devices. Without funding from the VETI program, CSUSB students with disabilities will continue to remain at a significant disadvantage compared to their non -disabled peers in regards to degree completion and obtaining competitive employment . Moreover, CSUSB students will remain dependent on peer notetakers, which employers will not provide as a workplace accommodation and deaf and hard -of-hearing students will continue to be severely restricted on the activities that they can participate in because an ASL interpreter has to be scheduled 72 hours in advance. The AT devices proposed under this program are critical to bridging this achievement gap.

Cost: $$ (One time or recurring)

WAIV requests a one-time cost of $12,310 to purchase 25 2GB Livescribe Echo Smartpens, 60 Livescribe notebooks and one (1) iCommunicator Software Kit with USB security key.

What are your intended Process Outcomes and/or Student Learning Outcomes?

• Twenty-five WAIV students will be able to demonstrate proficiency on all facets of the Smartpen.

• Twenty-five students will demonstrate that they can organize the content of their notes more effectively using the Smartpen and apply this skill to multiple environments.

• Twenty-five students will identify at least three (3) ways they can apply notetaking strategies using the Smartpen to job-related duties.

• Deaf and hard-of-hearing students will be more engaged in WAIV activities by using the iCommunicator software kit.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

The assessment plan for student learning outcomes for the WAIV Smartpen Checkout Program focuses on independence, multimodal learning, self-efficacy for taking effective notes, and engagement. Training pre- and post-assessments and a satisfaction survey will be administered, which will include qualitative and quantitative measures. WAIV staff will identify potential Smartpen candidates through the use of an Assessment Summary of Student Need for Smartpen Technology form. The one page assessment will collect critical data about the student's identified needs that includes information about the student, the environment(s), how the student will use the device, and tasks to be performed and will inform staff decision-making about determining the best candidates for the WAIV Smartpen Checkout Program. The assessment summaries will be audited annually to determine the number of candidates and to develop a profile of those selected to participate in the program. Program participants will complete the Livescribe Smartpen 101 Course, a self-paced online course that includes five modules with 24 lessons. The five modules include: Smartpen Basics, Record and Playback; Save, Search and Organize; Send and Share; and Customize with Apps. Students will print out the certificate of completion at the end of the course and provide a copy to WAIV. WAIV staff will compare the certificates to the students who checked out Smartpens to determine who successfully completed the course. Moreover, the WAIV Computer Lab Technician will schedule an interactive one-on-one session with each participant to review the features of the pen and to evaluate the student's capacity to operate the device. The WAIV staff will create an online module on best practices and strategies to take effective notes using the Smartpen in academic and workplace settings. Students will take pre- and post-assessments that include quantitative and qualitative questions to evaluate their increase in knowledge. The pre- and post-assessments will include a question about how students can apply notetaking strategies using the Smartpen to job-related duties and effective practices for organizing the content of their notes. WAIV staff will score the pre- and post-assessments and identify key themes in the qualitative responses. The results will be used to improve the online module. A log will be kept to determine the number of times that the iCommunicator software kit was employed and for what purposes. At the end of each quarter, participants will complete a customer satisfaction survey about the program, and responses will be tabulated and used to improve the program.

•By July 31, 2017, WAIV staff will purchase 25 Livescribe Echo Smartpens, 60 Livescribe notebooks, and one iCommunicator 5.0 software kit.

• WAIV staff will identify 25 Livescribe Smartpen users by completing an Assessment Summary of Student Need for Smartpen Technology form on potential candidates by September 29, 2017.

• Twenty-five WAIV students chosen to participate in the Livescribe checkout program will complete the Livescribe Smartpen 101 Course by September 29, 2017 and ongoing as needed.

• WAIV will create an online module on best practices and strategies for effective notetaking by September 29, 2017.

• At the end of each quarter, students participating in the program will complete a satisfaction survey.

Implementation Activities Timeline (Process Objectives)
Dates: July 3, 2017 - June 16, 2018

July-September
• Purchase equipment/supplies for VETI grant;
• WAIV staff will complete the Livescribe Smartpen 101 course;
• Identify smartpen candidates through the use of Assessment Summary of Need for Smartpen Technology form;
• Program participants will complete the Livescribe Smartpen 101 course;
• Participants will provide WAIV with certificate of completion;
• WAIV staff will create an online module of best practices and strategies to take effective notes using the Smartpen in academic and workplace settings;
• 1:1 interactive sessions with WAIV Computer Lab Technician II, to review features of the pen, evaluate the students capacity, and to troubleshoot challenges;
• WAIV will develop pre- & post-assessments and a satisfaction survey that includes quantitative & qualitative questions to evaluate participants increase in knowledge and satisfaction with the program;
• WAIV will administer and score the pre- and post-assessments to identify participants' increase in knowledge and key themes in the qualitative responses;
• Logs will be kept to determine the number of times that iCommunicator kit was used and for what purpose.
• WAIV staff will administer a customer satisfaction survey to participants and feedback will be incorporated into the program.

October-December
• 1:1 interactive sessions with WAIV Computer Lab Technician II, to review features of the pen, evaluate the students capacity, and to troubleshoot challenges;
• Logs will be kept to determine the number of times that iCommunicator software kit was used and for what purpose;
• WAIV will submit a progress report to VETI staff.
• WAIV staff will administer a customer satisfaction survey to participants and feedback will be incorporated into the program.

January-March
• 1:1 interactive sessions with Computer Lab Technician II, to review features of the pen, evaluate the students capacity, and to troubleshoot challenges;
• Logs will be kept to determine the number of times that iCommunicator kit was used and for what purpose;
• WAIV will submit a mid-year summary report.
• WAIV staff will administer a customer satisfaction survey to participants and feedback will be incorporated into the program.

April-June
• WAIV will administer and score post-assessments to identify key themes in the qualitative responses;
• Logs will be kept to determine the number of times that iCommunicator kit was used and for what purpose;

•WAIV staff will administer a customer satisfaction survey to participants and feedback will be incorporated into the program;
• WAIV will submit a closeout report to VETI grant staff.

Project Timeline   **Start:**   07/03/2017   **End:**   06/16/2018   **First Quarter of Student Use**   Fall 2017

Budget:
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/242-af01579a4997c267f1042708cd307f9c_WAIV_VETI_BUDGET_SPREADSHEET.xls

Division

Academic Affairs		College of Natural Sciences
Campus Division	**Jeremy**	**Dodsworth**

Total Amount Requested for FY 2018   **$59,042.00**

Project Title: **Increasing computer use in Biology classes with "instant computer labs"**

Project Abstract:

The field of Biology has been profoundly impacted by "big data" and the information age. Comfort with use of computers for visualization and analysis of data is becoming necessary for biologists and for students in other fields. To improve biology-relevant computer literacy and active participation of students in visualization and analysis of biological data, funding is requested for: 48 17" Dell laptop computers ($53,714) with security cables ($2800); two mobile, secure charging carts ($2140); and backpacks compatible with 17" laptops ($387). These will effectively be "instant computer labs" that can be set up in different laboratory/lecture section rooms for class meetings that would benefit from or require computer use by individual students, and can be taken into the field for data collection for classes such as Ecology. This approach would be flexible (simultaneous use in multiple classes) and not require the extra space necessary for a dedicated, static computer lab. These laptops would be used in both the Biol 100 non-majors GE course (~400 students/year) as well as upper division Biology courses (~700 students/year), impacting a broad cross section of CSUSB students. Expected outcomes are increased computer-aided active learning in labs/classes and increased student comfort and skill with use of computers for tasks in the biological sciences. Outcomes will be assessed by number of impacted students and changes in class /course structure as identified by instructors, and student surveys of benefits provided by individual computer use. College of Natural Sciences ITS will assist with laptop setup and servicing.

Challenge(s) this project will address:

The field of Biology today isn't our Mothers' or our Fathers' Biology anymore. The advent of the information age and so -called "big data" are having a major impact on the discipline of Biology as well as other sciences, and on society as a whole. Examples include: genome sequence data, and corresponding data on gene expression and protein levels; 3-dimensional structures of proteins and how they interact; large amounts of image and video data on morphology and biological systems at the microscopic level to the macroscopic to the global level; and a vast supply of data that is relevant to the study of biological systems (e.g. climate data, census data). There is also an increasing amount of visualization and active learning computer exercises available to Biology instructors and students. As a result, it is becoming necessary for current and future generations of biologists to understand how this data can be accessed, visualized, and analyzed, and to have the skills and experience to use computers to perform these tasks. It is equally important that students in other fields have an apprieciation for how computational methods are used in and are impacting the field of Biology. Thus it is important to include use of computers in various aspects of Biology education. Currently the CSUSB Biology department has 12 old desktop PCs available for general use in room BI-303, and six similar desktop computers in three of the teaching laboratories. However, these resources are not adequate to incorporate use of computers in a variety of Biology classes for both non-majors and majors.

To address this problem, we are asking for funding through the VETI to purchase 48 Dell Inspiron laptop computers (17" screens, 2 TB storage, 16 GB RAM) and security cables, along with two mobile storage/charging carts (holding 24 laptops each) and 12 backpacks that can be used for transport of the laptops on field trips (two laptops can fit in one backpack). These will function esssentially as "instant computer labs": they will be available for use in individual sections of Biology courses whenever and wherever such use would be deemed appropriate. This approach will offer greater flexibility than a static computer lab, and will not require a dedicated room (no extra space needed). The request for 48 laptops, rather than a smaller number, will enable active learning on these computers by individual students in multiple laboratory sessions (24 students each) or upper division class sessions (24-48 students each; students could possibly work in pairs in larger classes) at once. These Dell 5767 Inspiron laptops are powerful enough in terms of memory and processor speed for computationally -intensive tasks (e.g. for bioinformatic analysis of genome sequence data) and should remain so into the near- to mid -future; the 17" screens will be useful for visualization of biological (e.g. interactive viewing of 3D protein structures). The security cables will be used in cases where the laptops will be set up in a single room for multiple class meetings, e .g. in labs for Biol100 that run throughout the day.

The availability of this resource will allow instructors in the the Biology Department to design individual class sessions, or even whole courses or course modules, that would incorporate active student use of computers in the classroom, thus impacting the development of the Biology curriculum to better meet the needs of students in the 21st century. Impacted classes, listed below, include the non -majors Biol100 GE-B2 course (this will also be a GE course after Q2S conversion) as well as required and elective upper division Biology courses, affecting a variety of CSUSB students (up to ~1100 students per year). Increased computer literacy and active learning should enhance student success in these Biology courses (some of which are bottleneck courses, such as Biol100), and therefore contribute to the 2025 Graduation Initiative. Although students typically have access to computers, either personally or through university resources, outside the classroom, use of the "instant computer labs" would allow instructors and students to work together on activities involving computers in the classroom, enabling better feedback to students. Letters from the CSUSB Biology Club and Student Society for Stem Cell Research in support of this proposal are attached.

Listed below are classes where Biology faculty have indicated they would use the laptops, the number of students taking these classes per year, and examples of the uses for the laptops in these classes.

Classes for Bioloy Majors (involving 11 of 16 Biology faculty)
Biol300 Cell Physiology: Required for Biology major, ~192 students/year.
Biol320 Microbiology: Elective, ~48 students/year.
Biol331 Biology of Invertebrates: Elective, ~24 students/year.
Biol400 Molecular Biology: Required for Biology major, ~144 students/year.
Biol420 Medical Microbiology: Elective, ~24 students every 2 years.
Biol423 Genetics: Required for biology major, >48 students/year.
Biol427 Functional Microbial Genomics: Elective, ~24 students/year.
Biol431 Plant Physiology: Elective, ~24 students/year.
Biol450 Ecology: Required for Biology major, ~144 students/year.
Biol490/491 Special Topics classes, including Genomics and Neurobiology lab: Elective, ~24 students/year.
Biol555 Comparative Anatomy: Elective, 24 students every 2 years.
Biol573 Immunology: Elective, ~24 students every 2 years.

Classes for non-majors (GE, allied health science)
Biol100 Topics in Biology: GE-B2, ~400 students/year.

The following are planned uses in one or more laboratory and /or lecture sections in the classes listed above: 3D structure modeling of proteins and nucleic acids; Interactive viewing of morphological data and online simulations; DNA sequence identification, alignment and phylogenetic analysis; Oligonucleotide primer design; Bioinformatic analysis of genomic sequence data; Recording and analysis of laboratory and field data.

Implementation and sustainability: When not in use, laptops in secure carts will be stored in the Biology Departmental office or the Biology Stockroom. A Google docs sign -up sheet will be used to reserve and coordinate laptop use in various classes. Essentially all of the software necessary for the planned uses is either available currently through CSUSB, is freely available on -line (e.g. various bioinformatics programs), or can be accessed freely through the internet, so funding for software is not requested at this time. College of Natural Sciences ITS will help with laptop setup, software installation (including necessary security software), and servicing of laptops when necessary. Laptops will be covered by extended hardware warranty and premium support from Dell (included in cost), and CNS ITS personnel were consulted and involved in obtaining quotes for the Dell laptops. For improvements or replacement of laptops in the future, annual CNS "lottery" funds will be used for purchase of upgrades or additional software that instructors may require as additional uses of laptops are envisioned.

Alternate solution(s) should this project not be funded:

Should this project not be funded, funding for a smaller number of laptop computers and a single secure cart will be requested through College of Natural Sciences annual "lottery" funds. However, it will likely not be possible to obtain enough laptops through this funding source to be used in both the non-major Biol100 course and the upper division Biology courses, which will limit the impact to either Biology majors or students taking Biol100 as a GE course.

Impact(s) if this project is not funded:

If not funded, many of the exercises planned would be restricted to demonstrations by the course instructor, with the students sitting back and watching. This more passive approach would thus continue to be the status quo. With laptops available, instructors will be more likely to include exercises in lab and /or lecture sessions that will actively engage students through computer use. Also, if the project is not funded, it will be less likely that exercises involving individual student use of computers will be incorporated into the redesign of the Biol 100 laboratory sections, because the necessary resouces will not be available.

Cost: $$ (One time or recurring)

One-time cost of $59,042, with no recurring costs.

What are your intended Process Outcomes and/or Student Learning Outcomes?

1) As a process outcome, the "instant computer labs" will increase the amount of active student learning /participation in activities involving the laptops and will impact the structure and design of individual class sections that would make use of the laptops.

2) As a student learning outcome, the "instant computer labs" will increase students' comfort and skill in using computers for analysis/visualization of biological data.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

1) To assess the process outcome, instructors using the "instant computer labs" will be asked to describe how laptops were used, how many students were impacted, and whether they changed or augmented their class/course content as a result of laptop availability.

2) To assess the student learning outcome, surveys of students in classes incorporating laptop use will be conducted, querying students on how laptop use benefited their ability to learn subject material and their skill and comfort level with biology-relevant computer use.

Project Timeline   Start: 08/01/2017   End: 07/31/2018   First Quarter of Student Use   Winter 2018

Statements of support by collaborating organization(s) or department(s) (if applicable)

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/179-3d3b4d3771daf885072a22f959e7c26e_SSSCR_Letter_of_support_Dr.Dodsworth.docx

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/45-fc781608434abc106cc2d22a08876385_Biology_Club_VETI_letter_of_support_Signed

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/109-34b6a2d40be56b710060c232f7d4dca1_VETI_BUDGET_TEMPLATE_for_submission.xls

CALIFORNIA STATE UNIVERSITY SAN BERNARDINO

Division of Information Technology Services

Division
Student Affairs

Campus Division   **Bea**   **Larez**

Records, Registration and Evaluations

Total Amount Requested for FY 2018
$20,000.00

Project Title:
Graduation Requirement Check (Grad Check) Online Submission

Project Abstract:
This project will support an online submission process for filing (or submitting) a Graduation Requirement Check (Grad Check). Students will be able to submit and pay for a Grad Check through their MyCoyote Student Center, using a one-time log-in. As a result of logging into their Student Center, this process will provide an "auto-fill" of their name, address, and major. This online service will promote the following: 1) allow students to apply/submit anytime (24/7); 2) encourage on time and early Grad Check submission; 3) allow quality and timely service to students (no waiting in long lines); 4) Avoid the extra step of walking over to Student Financials Office to pay the fees; 5) meet the submission deadlines by 11:59pm rather than 5PM (business hours); 6) accommodates students with disabilities in a much more productive process. Placing this service online will also streamline the process to graduation, contributing to the Graduation Initiative 2025.

Challenge(s) this project will address:
This project will address the challenges of having to come to campus, wait in long lines at two offices (Registrar and Student Financials) to submit a Grad Check by the designated deadlines. This proposes an inconvenience to our students, especially those with mobile disabilities, as currently students are having to go downstairs to the Student Financials Office to pay Grad Check fees. This also proposes a challenge to students who work during our business office hours, our evening students, our online only students and our PDC students. Because this service is currently done in person, students tend to put this process off, impacting timely awarding of their degrees which can reflect negatively in meeting the Graduation Initiative 2025.

Alternate solution(s) should this project not be funded:
There are no other solutions. We would continue to offer in-person submission as we currently do, during our normal business hours. Students will continue to walk downstairs to pay fees.

Impact(s) if this project is not funded:
Our Grad Check process will remain out-dated, without improvements that coincide with today's technology and services. Our campus is growing and so should our services. With each new generation pursing their educational goals, it is important that our technology and services are enhanced, offering more online options and services, meeting today's students' needs and expectations. Placing this service online will also streamline the process to graduation, contributing to the Graduation Initiative 2025.

Cost: $$ (One time or recurring)
$20,000 (one time)

What are your intended Process Outcomes and/or Student Learning Outcomes?
This will increase student use of this service, contributing to student satisfaction with our services. Students will be able to meet the filing deadlines and pay the fees in one process. It will also give students more time on the deadline day (11:59pm vs 5:00pm).   This service will also be available 24/7.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)
The existence of this service will help us track how many students are using this service vs in-person services.

Project Timeline   Start: End: First Quarter of Student Use   Spring 2018

Statements of support by collaborating organization(s) or department(s) (if applicable)
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/17-9a291a1981a71fe62552aedab36cf44d_ONline_grades_1.pdf

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/74-d9b6c4030029e4e5c3c0075399442ded_Bea_Larez.pdf

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/70-a8659487c076b25dd4da9586f900ffcc_ONline_grades_2.pdf

Budget:
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/219-aede85c166914ae4bd0c2dfd5990e49d_VETI_BUDGET_TEMPLATE.xls

Division

Academic Affairs		College of Arts and Letters
Campus Division	**Eva**	**Kirsch**

Total Amount Requested for FY 2018 $26,557.00

Project Title: **Instructional Engagement at RAFFMA for ALL CSUSB Students**

Project Abstract:

RAFFMA requests $26,557 from VETI for the project "Instructional Engagement at RAFFMA for ALL CSUSB Students", which includes purchasing a license for 2017-18 audio tour platform (OnCell), as well as IPods, IPads, and head phones for students to tour exhibitions and conduct research. While the web accessible IPads will enhance access, particularly benefitting students with special needs and disabilities. The project also involves purchasing of some pertinent hardware for the museum's galleries and new event space – a hub for instructional and educational programs. One of the 2017-18 workshops will be "Know Your Museum Career Options" recently funded by SSI. Some of the funds will be used to publish RAFFMA's collections online via TMS, to increase access. The museum plans to hire a CSUSB undergrad or grad student to prepare the collection data for publication.

If funded and implemented, RAFFMA (the only American Alliance of Museums accredited art museum in San Bernardino) will improve the overall quality of its instructional as well as general educational and engagement efforts. By broadening and innovating student access and experience, the museum will enhance academic success, which supports the CSUSB Graduation Initiative 2025.
RAFFMA has been self-sufficient in the area of technology, not relying on the College of Arts and Letters. Serving close to 10,000 visitors (mostly students) annually, the museum aspires to offer viable technological resources benefitting our undergrad and grad students (art, history, museum studies and anthropology), offering them quality access and advanced research tools to research the museum's collections and exhibitions.

Challenge(s) this project will address:

Accessibility to the museum's exhibitions and collections via audio tour platform, the publication of RAFFMA's collections online, and quality instructional engagement technology. Identifying RAFFMA as a resource for CSUSB students.

Alternate solution(s) should this project not be funded:

This project will address workshop seminars related to "Know Your Museum Career Options".

Impact(s) if this project is not funded:

RAFFMA will be behind other university museums and galleries around the world in terms of instructionally engaging technology.

Cost: $$ (One time or recurring)

-One time cost for hardware.
-One time license purchase and annual rate for OnCell audio tour platform software.
-One time license purchase and annual rate for The Museum System (TMS) software.
-Monthly cost for CSUSB student intern working on data publication of RAFFMA's collection through the software The Museum System (TMS).

What are your intended Process Outcomes and/or Student Learning Outcomes?

-Intended Process Outcomes include students' use of the provided resources, which include the IPads and IPods, with RAFFMA's exhibition content and the publication of RAFFMA's collections for student research. As well as, increased attendance inside the museum for lectures and workshop seminars related to "Know Your Museum Career Options".

-Student Learning Outcomes include students developing a deeper knowledge of RAFFMA's collections and exhibitions, since the collections and the museum are for students. Another Student Learning Outcome, are students who are career prepared individuals upon graduation from attending lecture and workshop seminars related to "Know Your Museum Career Options".

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

Measure I

Provide students with IPads and IPods to check out for audio tours of the museum's exhibitions.

Outcome I

Record will be kept of how many students are checking out IPads and IPods at museum front desk also through Oncell, which records how many users are accessing the audio tour platform whilst in the museum, affirming students' usage of the resource.

Measure II

Provide students with workshop seminars and lectures with quality technology that enhances instructional engagement in museum's event space.

Outcome II

Record of attendance will determine student continuity to RAFFMA's educational workshops and lectures. Pre-museum visit and post-museum visit surveys will be handed out to determine student satisfaction of experience of resources provided.

Measure III

Hire CSUSB undergraduate or graduate student intern to begin data publication through the platform The Museum System (TMS) of RAFFMA's permanent collections to be made public via RAFFMA's website. CSUSB student will also serve as a peer researcher/counselor for programming related to "Know Your Museum Career Options".

Outcome III

After CSUSB student intern has completed the September 2017-May 2018 data publication of RAFFMA's collection student intern will have a comprehensive knowledge of museum collections and handling . Student intern will have the experience before graduation for a career in museum collections and handling, promoting faster graduation, to enter the career field.

Project Timeline   **Start:** 09/01/2017   **End:**   06/29/2018   **First Quarter of Student Use**   Fall 2017

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/78-23723d7f97b7a59cf464665e84a106b5_VETI_BUDGET_RAFFMA.xls

<u>Division</u>		
	Academic Affairs	College of Natural Sciences
	Campus Division **Chris**	**Gentry**

<u>Total Amount Requested for FY 2018</u>   **$89,736.00**

<u>Project Title:</u>   **(PE 133-134) Kinesiology Laboratory: Physical Activity and Pedagogical Success Laboratory**

<u>Project Abstract:</u>

The Kinesiology Department is seeking funding for the technology necessary to complete a new, state-of-the-art kinesiology teaching and research laboratory to serve our growing student population (1,000+ students) in Pedagogy, Allied Health Professions, and Exercise Science. The lab's open design will allow our students to examine human movement through the assistance of technology such as iPads with apps (e.g., Coach's Eye, QR Codes and 4D visuals), in addition to an eye-tracker, Bluetooth heart rate monitors and Dartfish. The use of SOLOSHOT 3 and Swivl will allow students to record and analyze their own movements. Additionally, a main screen will allow for class lectures, as teachers and students will have the ability to display what is on their computer or iPad on any or all of the multiple monitors in the room with the touch of a button. Such a learning space will allow for asynchronous learning or shared learning at the discretion of the teacher. The student-teacher collaboration through both teaching and research opportunities will be increased exponentially, and professors will be able to assess student learning in authentic assessment (real world) settings. From this simulated learning environment students could become more motivated and interested in their academic careers as they now see an outlet and transferability into their future careers. This motivation could promote effective study habits and realistic goals to graduate on time to enter the workforce. We believe this lab would give our students an advantage after graduation.

<u>Challenge(s) this project will address:</u>

At this time, many classes are being taught in research labs which limits both the scope of kinesiology classes and student research. Students have limited space and equipment to accurately reflect real life situations in which they hope to pursue a career. The creation of a simulated environment would enable students to gain valuable hands-on experience and immerse themselves in a setting that would reflect their future careers

<u>Alternate solution(s) should this project not be funded:</u>

We do not have any alternate solutions because of a lack of funds to pay for the technology. Department money would only allow for the purchase of necessary furniture (chairs, tables, cabinets) to compliment the technology.

<u>Impact(s) if this project is not funded:</u>

As was mentioned above, we currently do not have enough class space or lab space to adequately match the needs of our students. We teach many classes across campus, far from our laboratories. This limits the content that can be provided for our students. Currently, our programs are sharing laboratory space. The currently undersized Pedagogy Lab (HP 250) is the lecture space for several classes a day. For example, my KINE 352: Movement for Children class is being taught in the lab. The class begins with a lecture then the desks are pushed out of the way so I can demonstrate the minimal movements that a second floor, low ceiling lab will allow. Such an environment does not reflect a real life situation in which students will have to deal with in their future careers.

<u>Cost: $$ (One time or recurring)</u>

One time: $89,736

<u>What are your intended Process Outcomes and/or Student Learning Outcomes?</u>

1.   Students will be able to engage in self and peer assessment in a lab setting to better prepare them for their future kinesiology careers.
2.   Students will be able to utilize various tools (such as apps) to examine and study human movement as they would in a real life setting.

<u>Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)</u>

(1, 2) Students will be surveyed every quarter regarding their experiences with the lab and the technology used within the lab to continually maximize the educational experience and graduation readiness.
(2) Multiple authentic assessment rubrics across several classes will be created to ensure that students are given an opportunity to utilize the available technology.
(1, 2) Professors will be surveyed every quarter to track their use of the lab and gather feedback about the technology and space.

<u>Project Timeline</u>	**Start:** 07/05/2017	**End:** 06/08/2018	<u>First Quarter of Student Use</u>	Fall 2018

<u>Budget:</u>
http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/238-e017a8db2791da2038a750bc39565d79_PE_133-143_Lab_Budget_-_VETI.xls

Division

Information Technology Services
Campus Division   **James**   **Olinger**

Total Amount Requested for FY 2018   **$46,350.00**

Project Title: **24/7 Study Area**

Project Abstract:

The purpose of this project is to bring the computers that are in the PL-1109 open lab up to date in order to provide the best technology available for the new 24/7 Study Area for students that will be operational in the upcoming months. This will be the only 24/7 open lab/study area on campus. Information Technology Services (ITS) has already spent over $77,000 on new furniture, flooring, and renovations on the Pfau Library Addition, first floor for the 24/7 Study Area. By providing 24/7 access to the Study Area and lab, ITS will also incur staffing costs for the night-time support personnel. By funding the computer refresh project with VETI monies, it will allow the Information Technology Services division to fund other technology projects also intended on assisting with the Grad Initiative 2025 and other technological innovations for students. According to the Chancellor's Office Graduation Initiative 2025 website, a key objective is "ensuring technology is part of every CSU student's learning environment. Effective use of technology has been shown to improve retention in courses with the highest failure rates."

From March, 2016 to March, 2017, the PL-1109 lab saw over 40,000 logins during it's currently limited business hours. By providing this 24/7 study area and access to almost 100 computers, including up to 15 ADA-accessible computers, ITS is demonstrating its commitment to our students' graduation goals and those of the Chancellor's Office Graduation Initiative 2025.

Challenge(s) this project will address:

• The existing PL-1109 lab computers are 6 years old and are beginning to fail.
• Limited lab access at this time from 8:00am – 12:00 midnight, Monday – Friday and 7:00am – 7:00pm, Saturday and Sunday.
• At this time, students do not have a study area on campus for use "after hours".

Alternate solution(s) should this project not be funded:

ITS will have to slowly refresh the computer lab over the next several years with alternate funding as it becomes available and we will need to continue to repair these older computers with new parts if we can't find other funding.

Impact(s) if this project is not funded:

Students will be forced to use older computer equipment for studying and research until new computers can be purchased at a later time.

Cost: $$ (One time or recurring)

One-time funding:
ITS Funding: $46,350
Requested: $46,350

Total Cost: $92,700

What are your intended Process Outcomes and/or Student Learning Outcomes?

As mentioned above, we do expect to see increased student use of our services, increased student satisfaction with our services, and more social and collaboration gatherings in the 24/7 Study Area as a result of our improved technology and services.

For Student Learning Outcomes, we expect to provide new student training on software such as Microsoft Office, Blackboard, and other applications provided at the 24/7 Study Area.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

Also mentioned above, the PL-1109 lab saw over 40,000 logins during it's currently limited business hours. We expect this number to drastically increase as more students become aware of the 24/7 Study Area and lab. This is a tangible number that we will monitor over time.

We will also be sending Student Satisfaction Surveys out over the next year to the student population asking for feedback regarding their use of the study area /lab days/times and if they are pleased with the technology and services offered. We will also ask them for suggestions on improvements to the study area/lab. These results are also measurable.

Project Timeline   **Start:** 07/01/2017   **End:** 09/15/2017   **First Quarter of Student Use**   Fall, 2017 (or sooner)

Budget:

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/45-b0451a87723f5c2125bcf8a15678b154_VETI_Proposal_-_24-7_Study_Area.xlsx

Division

Academic Affairs
Campus Division   **Tomasz**

College of Natural Sciences

Owerkowicz

Total Amount Requested for FY 2018 $60,000.00

Project Title:

Beyond the Mono, Behold the Stereo: real-time true colour stereoimaging and quantitative analysis of microscopic specimens

Project Abstract:

Everyone knows that stereo beats mono in hands down music recordings. Stereo is also superior when it comes to viewing images, because of depth perception. Human stereoscopic vision is enabled by the overlap of visual fields of our pair of eyes, and we can't perceive depth if we cover (or lose) one eye. Unfortunately, images in textbooks and even HD electronics are essentially flat (i.e., mono). This VETI project will support acquisition of a state-of-the-art stereomicroscope with colour digital video-imaging capability. This equipment offers visualisation and precise measurement of structures in three (not two) axes, in true colour, and in real time. This equipment uses two objectives to image the same object at the same time, and by doing so obtains a pair of stereo images of a single 3D structure.

The stereomicroscope will permit us to image objects too large for regular microscopes in teaching labs, yet too small to observe with the naked eye - objects such as individual small bones of the human body, small insects or plants, or artificial structures built in a lab. The accompanying high-resolution colour video camera enables z-stacking of images taken at successive depths, and ultimately 3D virtual reconstruction of specimens and printing of plastic facsimiles for use in numerous courses: Biology of Organisms, Human A&P, Local Flora, Invertebrate Biology, Chordates, Comparative Animal Physiology, Comparative Biomechanics, and Advanced Microscopy, benefiting 1000 students a year. The stereomicroscope will also be used by students engaged in research projects in the laboratories of Biology faculty.

Challenge(s) this project will address:

Student success can be measured by improvement in 4- and 6-year graduation rates, but what happens to CSUSB graduates once they complete their degree requirements? In natural sciences, graduating with just a basic technical skill set doesn't help you get into medical school or impress potential industry employers. That's because across the U.S. there are plenty of college graduates with similar basic skills, vying for admission to post-graduate schools or applying for jobs. Increasing graduation rates without giving our graduates an edge over such competition is short-sighted, and leaves them "high and dry" with a degree that is not a ticket to a successful career. Unfortunately, that's the price of everyone earning a college degree. So how do we improve educational and training opportunities for CSUSB students, so our graduates end up looking superior and impressive when compared to graduates from other universities?

Access to laptop computers, high-speed wi-fi, educational "apps" is important, but such technology is now considered "mundane" at most tertiary institutions. What relatively few colleges offer their undergraduate students is the opportunity to be involved in cutting-edge research projects. Conference presentations and publications based on these research projects make student résumés stand out! Most CSUSB faculty actively promote research opportunities and offer interested students independent projects in their labs. These, however, require access to state-of-the art research equipment, which is not funded adequately by the CSU Chancellor's Office. This is where VETI can make a huge difference on our campus. Improvements in research infrastructure will directly translate to the success of our students, at CSUSB and beyond.

Our proposal requests funding for a research-grade stereomicroscope, which will allow high-resolution imaging of anatomic structures for students in biology and other science departments. It will be used to generate images for use in lectures and labs in a variety of organismal biology courses benefiting close to 1000 students, from lower-division introductory classes to advanced upper-vision electives and graduate-level seminars. Its images will be superior in quality (and true in nature) when compared to the standard material usually supplied by publishers for introductory courses: schematic and sanitised diagrams found in textbooks and websites, or "fake" holograms generated by virtual technology. Furthermore, in courses Advanced Microscopy and Vertebrate Surgery, the stereomicroscope will be used to train upper-division students in fine imaging techniques not offered at any other CSU campus! Finally, it will be used for student research projects; such research projects are a "must" for students applying to PhD programmes in science. In all cases, the stereomicroscope may be a factor that "tips the scale", by training our students above and beyond what's expected of undergraduates, and thus improve their chances for a successful post-graduate career.

Alternate solution(s) should this project not be funded:

None

Impact(s) if this project is not funded:

Biology (and other science) students don't receive superior training in image acquisition and analysis

Cost: $$ (One time or recurring)

$60,000 (one time)

What are your intended Process Outcomes and/or Student Learning Outcomes?

Process outcomes:
1. students will be more enthusiastic about organismal anatomy and physiology courses when stereoimaging is incorporated into the curriculum.
2. Biology faculty and students will establish an online stereoimage library as a learning resource for specified courses.

SLO's:
3. students will understand the power and limits of stereoimaging technology
4. students will better comprehend anatomic structure of plants and animals, including humans
5. students will develop an intuitive grasp of the interrelationship between organismal form and function
6. student success rate in Biology courses will improve when stereoimaging technology is integrated in their respective curricula.

Assessment Plan and Key Performance Indicators (KPI) (Measurable/Verifiable)

KPIs:

1. level of student enthusiasm will be assessed using anonymous questionnaires, and compared for lab sections with and without stereoimages/videos. We expect higher level of enthusiasm in the former.

2. number of visitors to the online image/video library will be recorded every quarter by an automatic (and anonymous) counter. We expect a positive correlation between course material complexity and website popularity.

Outcomes 3-5 will be assessed individually using appropriately phrased questions (pertinent to each SLO), interspersed between regular questions in lab and lecture exams. We predict student performance to show significant improvement once the stereomicroscope is up and running.

6. Student pass rate for each Biology course using stereo-images/videos will be compared with pass rates in the last three years. Considering that the course material and instructors have remained the same, a direct pre/post-implementation comparison is possible. In each course, we predict student pass rate to show a statistically significant increase after implementation of new technology. This should be particularly noticeable in large service courses, such as Human A&P.

Project Timeline   **Start:**   09/01/2017   **End:**   09/01/2027   **First Quarter of Student Use**   Spring 2018

Statements of support by collaborating organization(s) or department(s) (if applicable)

http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/157-e38270464e85ce2f2e88e867714307d5_Bio_Club_letter.pdf

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http://surveygizmoresponseuploads.s3.amazonaws.com/fileuploads/196359/3249196/238-ff3d7321746912c797defea66cf6acb7_Dept_support_letter.pdf

Budget:

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