

These were the top ranked SUNY Innovative Instruction Technology Grant (IITG) proposals from 2018 and 2019. They are being shared with the permission of the principal investigator. If you have questions about the IITG program, email iitgrants@suny.edu

2018 Tier 3 - A SUNY Catalog of Educational Projects and Innovative Initiatives (ASC SUNY)

Campus: Empire State College

PI: Nan Travers

Abstract: The Academic Sharing Community: A SUNY Catalog of Educational Projects and Innovative Initiatives (ASC SUNY) serves as a repository for campus initiatives, while providing guidance for project development and assessment and ways to network and partner across SUNY to help institutions meet demands of the 21st century. Through a partnership with SUNY Empire State College, SUNY Oswego, SUNY Genesee Community College, SUNY Rockland Community College, and SUNY's Center for Professional Development, this project will create: 1) a web-based portal to house ASC SUNY with single sign-on access across all campus constituents; 2) strategic prompts that assist campuses to connect initiatives, resources and tools when developing projects; 3) a searchable repository of SUNY-wide teaching and learning initiatives, resources and tools for campuses to research similar projects, outcomes and lessons learned; and 4) a culture and network to share ideas, processes, and resources and tools, and partnerships for projects across SUNY campuses.

Collaborators *Internal*

- Carla Meskill, Principal Investigator
- Jianwei Zhang, Associate Professor, Educational Theory and Practice and Chair, SOE
- Alan Oliveira, Associate Professor, Educational Theory and Practice, SOE
- Peter Shea, Associate Professor, Educational Theory and Practice, SOE and Provost for Online Learning
- Kim Colvin, Assistant Professor, Department of Counseling Psychology, SOE
- Rory Glass, Instructor, Department of Educational Theory and Practice, SOE
- Gretchen Oliver, Dean's Office, School of Education
- Jeremy Magnan, Grad Assistant, Department of Educational Theory and Practice

Learning Objectives:

Goal 1:

Create a web-based portal to house ASC SUNY with single sign-on access across all campus constituents with strategic prompts that assist campuses to connect initiatives, resources and tools when developing projects.

Goal 2:

Develop a searchable repository of SUNY-wide teaching and learning initiatives, resources and tools for campuses to research similar projects, outcomes and lessons learned.

Goal 3:

Create a culture and network to share ideas, processes, and resources and tools, and create partnerships for projects across SUNY campuses.

Amount Requested: \$60,000

Review Scores: <R1> 92 <R2> 100 <R3> 95 <R4> 92 **AVG = 94.75**

Narrative Comments:

(R1) The proposal builds on year long planning done by strong collaborative SUNY partners. The project has been needed for a long time and has great potential to be useful across SUNY and beyond. A minor question is whether this is intended to be a completely open repository or uses some other underlying model. (R2) This group has already done a lot of work to make this project a reality. The level of commitment and support makes the desired outcomes achievable. Communication about this resource is key. I really like the notion of developing and implementing strategic prompts to guide users. (R3) This is a logical next step, following the initial IITG funding. More clarity on how the initial project ends and the new begins would be helpful. (R4) Strong narrative with documented evidence of need. This is the 2nd or 3rd IITG proposal seeking funding for a "web developer." It might be advantageous for SUNY to hire a web developer(s) for all IITG proposals?

Project Assessment Comments:

(R1) The project assessment is very good and includes a variety of qualitative and quantitative data. Communication plan is excellent. (R2) I find both to be sound. Communication within SUNY is going to be key. A symposium or at the least a webinar on what this is, and the vision for how its uses, and what it will do would be a great addition to inform faculty and administrative leaders across SUNY. (R3) Succinct summaries of both assessment and communication are provided. (R4) The only concern that I have is the ability for grantees to fully assess "creating a culture" which is listed as an outcomes. Needed, yes, Possible within the funding year, I'm hesitant. That said the applicants make a good case for how results will be shared without and outside of SUNY.

Other Comments:

A winner! A couple of suggestions to strengthen the project would be to:

1. better define project success, e.g., "we will know the project is successful when repository has x items or y hits or z inquiries in the first year"
2. define strong metadata structure/keywords, etc. before beginning the repository to make items as easy to find as possible;
3. check w the folks who did the IITG project to create an information literacy portal to learn how to do it better (publicity, follow-up support, etc.)
4. be thinking how to make it grow --- connecting to Affordable Learning Solutions/Merlot, etc.

This will be a terrific project -- thanks for the vision to bring it together!

(R2) Impressive cross-campus/system involvement of talented individuals. (R3) A proposal that probably should have been part of the IITG infrastructure from year one. That it's presented now strikes me as fortunate and SUNY should jump at chance to fund this project.

Project Narrative

Higher education is under extreme pressure to be more responsive to an evolving economic landscape by preparing students to be more readily employable, while providing education at lower costs and in less time. In addition, institutions are faced with tighter budgets and lower enrollments and increased need for more programming, student supports and integrated technologies. Access, retention, and completion are key priorities at any institution, and are cornerstones of the SUNY EXCEL performance framework for its campuses. In response, higher education is replete with presumed solutions, each claiming to be the next best direction, innovation, tool, technology or resource that will help address challenges faced by learners, faculty, and employers. The landscape is becoming confused with so many possibilities and unclear outcomes of how these practices truly impact the quality of post-secondary education and support student success.

Across SUNY, there are countless pockets of innovation. Many projects evolved through IITG and other grants. Some are generated from student success programs. Others progressed through industry and professional partnerships and local economic needs. These accomplishments and lessons learned are hidden gems across the system and are rarely organized and shared in ways that can planfully and deliberately impact other campuses' processes and offerings. The challenges for campuses include: how to learn about each other's work; how to decipher when, how, and why a single or combination of approaches can be effective; how to implement such an approach; and how to reflect on, demonstrate, and measure its effectiveness.

Solution: Develop a SUNY-wide, web-based interactive academic sharing community with a catalog of educational projects and innovative initiatives. The web-based portal will: 1) promote a culture of strategic design of curriculum, assessment, academic and student support services, and applied learning through strategic prompts that help shape the design and implementation of initiatives; 2) provide a repository of different teaching and learning initiatives, resources and tools; and 3) encourage peer-to-peer networking and partnerships across SUNY campuses. In addition, the site will link to SUNY policies and procedures, internal and external grants, and other opportunities for program development and expansion. The Academic Sharing Community: A SUNY Catalog of Educational Projects and Innovative Initiatives (ASC SUNY) would be a key solution to support and demonstrate the reach of the SUNY EXCEL performance framework.

2017 IITG Planning Grant: This past year, a \$10K IITG planning grant was used to develop the concepts of ASC SUNY (pronounced “ask SUNY”). As part of the planning process, data were collected from past IITG projects, FACT² project website, a literature review conducted by the Transforming Higher Education FACT2 team, and other external sources focused on change and innovation in higher education. From these sources, over 125 innovations and practices within 16 themes were identified. In addition, a campus survey was developed to collect more information about current and past initiatives. The themes and innovation topics will be used to create a taxonomy for tagging projects in the portal, and the IITG project data and the campus survey results will be used to populate the ASC SUNY catalog. Additional data is planned to be collected on the Performance Improvement Fund (PIF) projects across SUNY.

The 2017 IITG planning team, consisting of Nan Travers (Empire State College), Michele Forte (Empire State College), Kathleen Schiefen (Genesee Community College), Jill Pippin (SUNY Oswego), Susan Deer (Rockland Community College), Lisa Raposo (Center for Professional Development), and Chris Price (Center for Professional Development), met throughout the 2017 funding period and has developed a preliminary plan for features of ASC SUNY. The report (forthcoming) addresses areas of: project description and purpose, audience, features and content, landing page and navigation, development and maintenance, and assessment.

Although ASC SUNY will contain a catalog of SUNY-wide projects, it is more than just a repository. It will also provide strategic program design prompts using established standards from the field (e.g., Quality Matters, Ten Shared Design Elements of a Competency-Based Program, and Connecting Credentials Framework) that will help individuals and institutions glean pertinent information from the catalog and formulate their unique application. The networking side will provide highlights of related projects, with contact information to learn more about and/or form partnerships across SUNY campuses. ASC SUNY will also provide guidance on informed strategies for successful program assessment and improvement. In

addition, Patrice Torcivia is submitting a proposal to use [SenseMaker®](#) to review and analyze the IITG projects. The results will be shared on the site to help others learn more about project outcomes and how to incorporate good results into their own projects.

Partnerships: This project is a partnership effort across four diverse SUNY campuses (Empire State College, Genesee Community College, Oswego, and Rockland Community College) and the SUNY Center for Professional Development. SUNY Empire State College's Center for Leadership in Credentialing Learning (CL2) will lead this project. The 2017 IITG planning team will serve as the ASC SUNY advisory board: Nan Travers (Empire State College), Michele Forte (Empire State College), Kathleen Schiefen (Genesee Community College), Jill Pippin (SUNY Oswego), Susan Deer (Rockland Community College), Lisa Raposo (Center for Professional Development), and Chris Price (Center for Professional Development). Additional advisory board members may be added as the project unfolds and the need for key expertise is identified. All SUNY campuses will be asked to contribute to the inventory of practices, resources and tools, and to share experiences and lessons learned.

Line Item	Description	Type: Faculty, Staff or Student	Effort (Est. FTE or hours)	IITG Grant Funding Request	Campus Match**
Personal Service/Personnel (indicate name, role & campus if known)					<i>Required for Tier 2 & 3</i>
1.	Project Co-PIs		0.0	0	0
2.	Nan Travers = 25% of salary = \$104,983 x 25% = \$26,246		0.0	0	26,246
3.			0.0	0	
4.	Web Developer = 50% x \$64,000 = \$32,000		0.0	32,000	0
5.	Professional Staff for program support (50% x \$44,000) = \$22,000		0.0	22,000	0
6.			0.0		0
7.			0.0	0	0
8.			0.0	0	0
9.			0.0	0	0
10.			0.0	0	0
11.			0.0	0	0
12.			0.0	0	0
13.			0.0	0	0
Community Colleges Only: Fringe Benefit Expense (may be funding request OR campus match)				0	0
Subtotal, Personnel Expense				\$54,000	\$26,246
Other-than-Personal Service/Personnel (OTPS)					
Supplies & Materials Items:		Purpose (if not obvious)		\$0	\$300
14.	Office Supplies			0	300
15.				0	0
Travel (list trips; OK to group trips for like purpose)		Purpose (if not obvious)		\$6,000	\$3,500
19.	Travel for advisory board and grant personnel to meet and work on materials (2 in-person meetings x 10 people x \$150 (per person for hotel, travel and food) = \$3000)			3,000	0
20.	SUNY conferences (CIT, SUNY Online, COIL, NUTN) and National conferences (e.g.,			3,000	3,500
21.				0	0
Services (provide vendor name if known):		Purpose (if not obvious)		\$0	\$0
19.				0	0
20.				0	0
Equipment (hardware, software & other equipment here):		Purpose (if not obvious)		\$0	\$0
27.				0	0
28.				0	0
29.				0	0
30.				0	0
31.				0	0
Subtotal, OTPS Expense				\$6,000	\$3,800
GRAND TOTAL (enter the green box - for total funding request in application form)				\$60,000	\$30,046

2019 - Tier 3 – Implementation and Evaluation of Micro-Credentials on the Pharmacists' Patient Care Process in Pharmacy and Pharmacy Technician Programs: Promoting Patient-Centered Care

Campus: Buffalo (UB)

PI: Robert Wahler

Abstract: Accreditation standards for both Doctor of Pharmacy (PharmD) and Pharmacy Technician (PharmTech) education include incorporating the Pharmacists' Patient Care Process (PPCP). A 2018 IITG project developed content for micro-credentials on the PPCP through a collaboration of the University at Buffalo and Binghamton University PharmD programs and the SUNY Erie PharmTech program. The objective of the 2018 IITG project of developing flexible, stackable modules to enhance teaching and learning with content relevant for diverse institutions was achieved. This proposal will implement the PPCP micro-credentials, including development of an effort-reducing electronic submission framework to sustain the use of micro-credentials. The innovation's ability to larger-scale PPCP education will be evaluated throughout this project (content knowledge, value and appropriateness of assessments, time/ease of completion, and usability of the electronic submission framework, faculty load reduction). Assessment results will be used to further develop content with continued collaboration by the programs involved.

Learning Objectives:

Goal 1:

To implement micro-credentials on the Pharmacists' Patient Care Process that were developed with previous IITG funding. The micro-credentials will be implemented with faculty, staff, and healthcare providers as part of the continuing professional development micro-credential; in the Doctor of Pharmacy programs at the University at Buffalo and Binghamton University; and in the Pharmacy Technician program at SUNY Erie.

To effectively implement the micro-credentials, a sustainable infrastructure will be established at each campus, which will include software to issue badges and micro-credentials (not currently available at all campuses), and development of an electronic submission framework to reduce the staff effort needed in the future.

Goal 2:

To evaluate the micro-credentials on the Pharmacists' Patient Care Process. Information will be collected from micro-credential recipients (student, faculty, staff) to evaluate development of content knowledge, value and appropriateness of assessments/evidence of learning, time/ease of completion, and ability to use the newly developed electronic submission

framework. Information will be collected from program faculty to evaluate teaching load reduction and ease of ability to utilize modules.

The evaluation will include process (number of completions, time to completion), quantitative (survey, assessment performance), and qualitative (open-ended feedback responses) data from users affiliated with all three programs.

Goal 3:

To continue development of the micro-credentials on the Pharmacists' Patient Care Process. The initial round of funding was used to develop the core learning content (video, readings, basic assessment); however, the resources did not allow for all content desired.

The content and assessment will be improved based on additional content desired by developers and results from the evaluations that will be conducted throughout the implementation phase (see second project objective). This will include producing additional video content to be used in the learning modules and for assessment of content knowledge.

Amount Requested: \$59220

Review Scores: <R1> 100 <R2> 89 <R3> 92 **AVG** = 93.67

Narrative Comments:

(R1) Extremely clear and coherent presentation of a proposal that will continue the work begun for PSPP microcredentialing in the 2018-2019 IITG. A strength of the original IITG and this continuation proposal is the intra-SUNY collaboration across three campuses. Additionally, there is a nod to interprofessional education (IPE) which is a burgeoning accreditation requirement in graduate health sciences degree programs. This proposal will strengthen the SUNY brand for pharmaceutical training and will provide significant ROI. (R2) Narrative was comprehensive and well written. (R3) The clearest part of the application is the budget narrative, which outlines who will do what in this year's grant project. The strength of this proposal is that there are faculty, instructional designers, micro-credential experts and videographers all collaborating on a complex project to complete content design, implementation and assessment of the learning experiences, and implementation of the Credly credentialing system across campuses. It is ambitious, and can provide a template for what others may be able to accomplish with different subject matter, different campuses, and different audiences.

Project Assessment Comments:

Strong plan for assessment that engages assessment and evaluation experts. Evaluation will be performed throughout the duration of the project, not merely at the conclusion. Strong plan for dissemination of findings from this project, as well as the prior IITG project.; In the section on ROI, there's a clear intent that this project can put a framework into place for electronic submission and tracking of student, faculty, and staff micro-credentials. There is also mention of flipped classroom techniques to provide a flexible method for content delivery and assessment. Those elements should be capitalized upon in the assessment plan, with clear assessment strategies. The Assessment Plan simply says the success will be measured a number of ways. No specifics. HOW will implementation be measured? HOW will workload of faculty be compared before/after? What are the benchmarks that will warrant sustaining the effort without new funds?

The plan to assess time and ease of completion is good. How does student completion compare to faculty completion? How does time of completion compare within audiences? How will faculty know if the micro-credentials completed by students has improved knowledge and skills? The intent to find a comparison group should be part of the plan, not an "if possible" scenario.

Communication Plan is mostly CIT and Pharm circles (annual meeting and journals). Again, there are some valuable frameworks proposed here that are not discipline specific (electronic micro-credentials, badging, submission and tracking across campuses with students and faculty alike; also whether this does improve increased competence, and access to learning).; Good, but I would like to see more efforts at communication across SUNY. Presenting at CIT seems like the minimum for these sort of projects. There are plenty of opportunities to talk about microcredentials at other events.

Other Comments:

Greatly appreciate the timeline presented in color-coded graphical format. This assisted in driving home the complexity of the project, the different stages for each campus, and the immense consideration given by the PI and collaborators to the next stage of development.; The fact that there are three SUNY institutions and nearly 1,000 students is a good pilot for this. The fact that there are multiple players at the table for planning and implementation is a strength. The assessment plan and communication plan will serve SUNY well if these two elements are not discipline specific!; If this is considered a proposal for project funding renewal, I'm not sure all the criteria were addressed. On its own, I think SUNY wants to support campuses experimenting with Micro credentials. If successful, I'd also like to see this project (and specifically the electronic submission system) rolled out to other campuses..

Planning Grant Comments:

NA

Project Narrative

Background Public perception of a pharmacist is often limited to an experience in a busy community pharmacy where contact with a pharmacist is inadequate. This dated practice model has undergone change due to The Joint Commission of Pharmacy Practitioners (JCPP), a working group of 11 national pharmacy organizations, release of the Pharmacists' Patient Care Process (PPCP) in 2014. The PPCP outlines a standardized, evidence-based process emphasizing a patient-centered approach to care in collaboration with other professionals on the health care team. The American Council of Pharmaceutical Education (ACPE) accredits Doctor of Pharmacy (PharmD) programs and Pharmacy Technician (PharmTech) Programs. The ACPE 2016 Standards require that the PPCP be embedded into PharmD courses and experiences and that PharmTech students explain the PPCP, the technician's role in it, and be able to assist in its implementation.

A 2018 Tier 2 IITG titled "Development of a Micro-Credential on the Newly Developed Pharmacists' Patient Care Process for Use in Pharmacy and Health Profession Programs: Promoting Patient-Centered Care" was funded to create the **stackable** content for micro-credentials on the PPCP through a collaboration of the PharmD programs of the University at Buffalo (UB) and Binghamton University (BU), and the PharmTech program of SUNY Erie Community College (SUNY-Erie). We have adhered to the schedule and budget of the initial grant. The content for the modules was developed with input from the three programs involved, PharmD students from the UB Scholars program, the UB Center for Educational Innovation, and the UB Office of Micro-Credentials. Video production and editing has been scheduled and assessments for each module have been established. Using the stackable modules, two proposals were submitted to the UB Office of Micro-Credentials; one for a professional development (PD) micro-credential for program staff/faculty/affiliates, and the other for a PharmD student micro-credential which includes three required badges and two elective badges based on the student's specialization (First Project Objective). A presentation proposal was accepted for the 2019 SUNY Conference on Instruction and Technology and we submitted a proposal to the 2019 American Association of Colleges of Pharmacy (AACP) Annual meeting to present data on the process used to create the modules, including the learning achieved by Scholars students who participated (Second Project Objective). During the summer of 2019, we plan to examine data from a pilot group of stakeholders that complete the badges (Third Project Objective).

Project Innovation Significant efforts have achieved the 2018 project goals of developing stackable modules that enhance teaching and learning with enough flexibility that the content is relevant for diverse institutions. Our proposed project seeks to scale the innovation of the PPCP micro-credentials at SUNY beyond campus boundaries. At capacity the PharmD program at UB enrolls 500 and at BU 390 (BU received PharmD accreditation status in 2017 and enrolled the first cohort of students), and the PharmTech program at SUNY-Erie is a training program

that enrolls approximately 80 students per year. In addition, there are health science programs and healthcare members that seek professional development through SUNY. The project will create publicity to encourage students and individuals associated with these programs to enroll in the micro-credential. Within the grant period, UB will implement both the PD and PharmD student micro-credentials; BU will implement the PD micro-credential and pilot content from for the PharmD student modules with full micro-credentialing in subsequent years (due to the young school's developing curriculum); and SUNYErie will implement a micro-credential with at least one cohort of students. The content will be available through Open SUNY to extend to other learning environments.

In the development process, we identified that to **implement** and **sustain** this innovation campus needs will vary. Each institution requires software to issue the micro-credential (Credly). At UB, the institution subscribes to this; at BU each program is expected to pay a portion of the licensing fee for use; while at SUNY-Erie this will be the first micro-credential offered (with possibilities to develop more based on results of this project) and therefore the program must purchase the software in full. In addition, there are administrative personnel efforts involved in verifying that the requirements have been met, evidence was submitted, and in issuing the micro-credential. An objective of this project is to create an electronic submission framework for use across institutions that will streamline the effort needed to process students' evidence. This system will be beneficial in sustaining the use of micro-credentials. The value of this innovation to teaching the PPCP at a large scale will be evaluated throughout this project (content knowledge, value and appropriateness of assessments, time/ease of completion, and ability to use the newly developed electronic submission framework), and faculty (teaching load reduction, ease of ability to assign modules). The project embraces this research in order to improve instructional practices. Results from the assessment will be used to revise and further develop content, which will include collaboration by the programs involved and will likely require additional funds for video content and assessment. The innovation will be publicized to the greater pharmacy education community (academy) and we anticipate additional scaling at the national level as peer pharmacy institutes continue to search for ways to improve understanding of the PPCP.

Project Collaborators

University at Buffalo, School of Pharmacy and Pharmaceutical Sciences (SPPS). The PI of the project, Robert Wahler; Jaime Maerten-Rivera will assist with coordination and assessment; Pharmaceutical Care Courses Committee (Erin Slazak; Ashley Woodruff; Christopher Daly; Scott Monte; Nicole Cieri-Hutcherson- faculty from these courses will be involved in development, implementation, and assessment). Kalpesh Desai, coordinates the elements of the SUNY-Erie PharmTech program that are hosted by the UB SPPS through a SUNY inter-collegiate partnership.

Binghamton University, School of Pharmacy and Pharmaceutical Sciences. Sarah Lynch teaches the PPCP in the didactic setting the application of the process in the laboratory setting.

She is involved with several interprofessional courses which can help guide the project towards various professional audiences.

Erie Community College, Pharmacy Technician Program. Wendy Arndt Hunt is the Project Director of the Pharmacy Technician Program and has assisted in developing the affiliation between SUNY-Erie and UB Pharmacy. Carrie Kahn is the Executive Dean of Strategic Initiatives in Academic Affairs.

University at Buffalo Office of Micro-Credentials. The Director of Micro-Credentialing (Anne Reed) will assist with setting up content for the micro-credentials.

University at Buffalo Center for Educational Innovation (CEI). The online instructional design specialist will assist with making the modules accessible via an online platform and including appropriate assessment.

**Innovative Instruction Technology Grant Application
Proposed Project Budget**

Complete grey-shaded cells only; be sure budget narrative fully describes planned expenses and campus match.

**** Campus Match: examples are included in RFP with Tier 2 (25%) and Tier 3 (50%) award descriptions.**

Refer to this IITG FAQ for more budget details: <http://commons.suny.edu/iitg/budget-questions/#bqfn1>

Line Item	Description	Type: Faculty, Staff or Student	Effort (Est. FTE or hours)	IITG Grant Funding Request	Campus Match**
Personal Service/Personnel (indicate name, role & campus if known)					Required for Tier 2 & 3
1	UB SPPS administrative staff (verify assessment evidence, issue MCs)	Staff	0.15	6,705	0
2	Graduate student(s) (assessment of MCs)	Student	0.20	6,240	0
3	Software programmer (develop electronic submission system)	Staff	320.00	9,050	0
4	Robert G. Wahler, Jr., UB (PI)	Faculty	0.10	6,296	6,296
5	Jaime Maerten-Rivera, UB (oversee coordination and assessment)	Staff	0.08	2,836	2,836
6	Sarah Lynch, Binghamton (develop content, campus coordinator)	Faculty	0.05	2,805	2,805
7	Erin Slazak, UB (develop content, implementation within Pharm Care)	Faculty	0.02	1,231	1,231
8	Ashley Woodruff, UB (develop content, implementation within Pharm Care)	Faculty	0.02	1,151	1,151
9	Kalpesh Desai, UB (liaison to ECC Pharm Tech program)	Faculty	0.02	2,205	0
10	Christopher Daly, UB (implementation within Pharm Care)	Faculty	0.01	0	1,151
11	Scott Monte, UB (implementation within Pharm Care)	Faculty	0.01	0	1,081
12	Nicole Cieri-Hutcherson, UB (implementation within Pharm Care)	Faculty	0.01	0	1,104
13	Carrie Kahn, ECC (Executive Dean of Strategic Initiatives)	Faculty	0.025	0	4,536
14	Wendy Arndt Hunt, ECC (Project Director, ECC Pharmacy Technician Program)	Faculty	0.025	0	2,027
Community Colleges Only: Fringe Benefit Expense (may be funding request OR campus match)				0	0
Subtotal, Personnel Expense				\$38,520	\$24,218
Other-than-Personal Service/Personnel (OTPS)					
Supplies & Materials Items:		Purpose (if not obvious)		\$1,000	\$0
15	Marketing materials - printing, electronic media			1,000	0
16				0	0
17				0	0
18				0	0
19				0	0
Travel (list trips; OK to group trips for like purpose)		Purpose (if not obvious)		\$5,550	\$0
20	SUNY CIT conference (RGW, JMR)			2,000	0
21	Collaborative meeting	meeting with site collaborators		1,500	0
22	American Association of Colleges of Pharmacy 2019 Annual meeting	Attend and present poster		2,050	0
23				0	0
24				0	0
Services (provide vendor name if known):		Purpose (if not obvious)		\$8,000	\$7,872
25	Video updates/editing (Justin Bondi Productions)	Revisions/development		8,000	0
26	UB Center for Educational Innovation (CEI)	Instructional design		0	4,541
27	UB Office of Micro-Credentials	MC/badge administration		0	1,000
28	UB SPPS Office of External Affairs	Develop publicity campaign		0	1,731
29	Binghamton University IT (including support of Credley)	Support MC development		0	600
30				0	0
31				0	0
32				0	0
Equipment (hardware, software & other equipment here):		Purpose (if not obvious)		\$6,150	\$1,375
33	Credley (microcredential software) Binghamton University			1,200	0
34	Credley (microcredential software) ECC			4,950	0
35	Credley software - UB proportion used for SPPS MCs			0	375
36	UB Center for Educational Innovation (CEI) video production studio	Revisions to existing content		0	1,000
37					
Subtotal, OTPS Expense				\$20,700	\$9,247
GRAND TOTAL				\$59,220	\$33,465

2018 - Tier 2 - Open edX Pilot

Campus: Buffalo (UB)

PI: Joe Kerr

Abstract: The University at Buffalo (UB) College of Arts and Sciences (CAS), in collaboration with campus partners, proposes to explore Open edX as a traditional and post-traditional education delivery platform to students on a global scale. Open edX is the same open source platform that Harvard University and MIT co-produced to deliver MOOCs and is used for edX, but without requiring the two-million-dollar membership "buy in" to access the full-service edX consortium (marketing, hosting, etc.). Open edX provides a means to deliver courses, certificates and degrees in a highly flexible Learning Management System with different "plug ins" that enhance available functionality (e.g., e-commerce, research tools, etc.). We intend to partner with IBL Studios, a full service Open edX vendor, that can set up and configure Open edX, offer 24x7 application support, and assist UB with maintaining the UBx instance. If successful, we anticipate that a SUNYx service can be developed in a manner like the current SUNY-Coursera partnership.

Collaborators:

Internal: College of Arts & Sciences with UB VP/CIO & CIT Enterprise Systems, School of Engineering.

External: IBL Education.

Learning Objectives:

Goal 1:

To understand and develop best practices for an on-premises Open edX platform in service to multiple disciplines, and ultimately in service to SUNY

Goal 2:

To experiment with badge integration with cloud based badge platforms (e.g., different disciplines may require connections into different types of badge servers - we will test this in partnership with Empire State College as submitted through a related IITG application).

Goal 3:

To test whether Open edX can be scaled up outside of UB and what this will mean in terms of branding flexibility for different types of programs (and external UB partners)

Amount Requested: \$20,000

Review Scores: <R1> 95 <R2> 95 <R3> 100 <R4> 94 **AVG = 96**

Narrative Comments:

(R1) I'm confident in this group's ability to do good work and make this project work. One thing that wasn't clear to me, however, is the need for an alternative to Coursera. It is hard to call it innovative when we have a partnership we are trying to grow with a similar company. There may be very good reasons to explore an alternative to Coursera, but that wasn't made clear to me. (R2) The project narrative was concise and clear. As described, the project sounds both exciting pedagogically and also groundbreaking in terms of the uses of the LMS. (R3) The Pilot

of Open edX sounds promising. The project narrative indicates UB is in a place to compare features and usability with Coursera to determine preferences by faculty, IT Support, and administration. There is a focus on a global marketplace, a focus on the breadth of education's role (from degree to modules, from diploma to badges, etc.), and a desire for choice, rather than being locked into Coursera. There is also a commitment to scalability from college (CAS) to university (UB) to SUNY. The budget narrative is clear, easy to understand, and demonstrates the investment that UB is making with a match 5 times greater than the \$20,000 requested.

Project Assessment Comments:

(R1) I think this was solid, and I think you have the right people involved. People like Dr. Stephens will be able to take the information learned and share it with key stake holders throughout the entire SUNY system, and beyond. (R2) These are very clear plans with concrete results planned. (R3) 1 - Assessment: The measures outlined in the assessment plan are ambitious with less than one year of usage with the new Open edX. It seems that benchmark data from Coursera courses may be helpful (# of classes in the first term, # of enrollments, # of badges, User feedback on ease of registration (students), platform use (faculty and students?))... You are not simply examining and setting up Open edX, you have said you are looking at an alternative to Coursera, so you should be gleaning data that compares the two, right? The Communication Plan meets expectations.

Other Comments:

I look forward to seeing the results of this experiment!; This project complements the work SUNY has been doing in the OER, MOOC, and Distance Learning fields, and clearly has potential to expand into a SUNY-wide platform.

Project Narrative:

UB is actively pursuing new cross-disciplinary programs to support Academic Innovation. This has required new models of thinking, which began under the leadership of a “team of deans” to raise awareness across all the academic units of how UB, and more broadly SUNY, may be at risk if we do not collectively broaden opportunities to experiment with new delivery mechanisms and manners of credentialed learning.

A team of administrative staff from the School of Engineering and Applied Sciences (SEAS), CAS and UBIT (Computing and Information Technology Enterprise Information Systems) have combined efforts to investigate how we can be the first team within SUNY to experiment with an instance of Open edX.

In partnership with a third-party expert, IBL Studios, UB is strategically considering innovation in context. Capitalizing on trends that can be refined and targeted to specific learner populations with prioritized instructional needs aligns very well with criteria in the 2018 IITG RFP:

- **Impact student learning & success** by leveraging open software and a variety of “plug ins” that will enable experimentation of learner apps without disrupting normal on-campus LMS features or IT infrastructure.

- **Address contemporary challenges in public higher education** by scaling delivery of learning to large populations through creation of learning pathways that enable students to enter higher education through smaller, stackable modules and credentials.
- **Build competencies and support post traditional and adult learners – particularly those seeking to reinvent their academic or career trajectory.** Buffalo is not alone in having a large, eroding traditional industrial base. Home to multiple automotive manufacturers and suppliers, robotics is increasingly disrupting the manufacturing process. UB has already created a series of MOOCs describing these changes and can now begin production of “mini-modules” to assist with flipped classroom and massive content delivery through an edX implementation.
- **Support modular courses or pathways that are highly transferrable and “stackable” into certificates, micro-masters or degrees** which is the heart of what we hope to achieve with this technology platform. We’re hoping to work with at least one or two non-UB partners as part of the pilot to test how content might be adapted and moved around within the platform. The academic partners in SEAS and CAS are poised to create stackable credentials as part of the new Academic Innovation initiative as the campus evolves a more robust office to assist with the administration of these programs. This is part of the technology-in-service-of-pedagogy that can be scaled up over time.
- **Have strong potential to scale from a small scale IITG effort into a larger campus or sector opportunity through external funding.** In this case, the external funding will be in the form of highly sustainable funds generated by the learners seeking the content through continuing education, credentials and other content hosted on the platform that is in high demand.

The rollout of an edX platform will accomplish three important goals:

- 1) Provide an alternative to Coursera for delivery of “learning at scale.”
- 2) Enable autonomy for the institution – where revenue (and responsibility) is fully in the domain of the content creator and campus (not the platform provider).
- 3) Deliver modular education that can be purposed (and re-aligned) for a variety of learning goals.

When coupled with an e-commerce application, and other tools and “plug ins” the goal is to leverage the best of what we’ve learned by developing content for Coursera with an alternative delivery platform that the entire SUNY System can gain knowledge from.

Line Item	Description	Type: Faculty, Staff or Student	Effort (Est. FTE or hours)	IITG Grant Funding Request	Campus Match**
Personal Service/Personnel (indicate name, role & campus if known)					Required for Tier 2 & 3
1.	Joe Kerr - dedicated hours on project oversite to exclusion of other assigned work.	CAS staff	100.0	0	9,000
2.	Kevin Cleary - dedicated hours on project to exclusion of other assigned work	CIT staff	100.0	0	4,500
3.	Lisa Stephens - Asst Dean, SEAS - integration of SEAS content	SEAS staff	50.0	0	1,800
4.	Martin Camacho - CAS Asst. Dean of Technology	CAS staff	100.0	0	4,500
5.	Jay Stosklader - CAS IT staff	CAS staff	100.0	0	4,500
6.			0.0	0	0
7.			0.0	0	0
8.			0.0	0	0
9.			0.0	0	0
10.			0.0	0	0
11.			0.0	0	0
12.			0.0	0	0
13.			0.0	0	0
Community Colleges Only: Fringe Benefit Expense (may be funding request OR campus match)				0	0
Subtotal, Personnel Expense				\$0	\$24,300
Other-than-Personal Service/Personnel (OTPS)					
Supplies & Materials Items:		Purpose (if not obvious)		\$0	\$0
14.				0	0
15.				0	0
16.				0	0
17.				0	0
18.				0	0
Travel (list trips; OK to group trips for like purpose)		Purpose (if not obvious)		\$0	\$0
19.				0	0
20.				0	0
21.				0	0
22.				0	0
23.				0	0
Services (provide vendor name if known):		Purpose (if not obvious)		\$20,000	\$85,000
19.	IBL Education - discovery, architecture for required badging server integration	app integration		0	25,000
20.	Estimate of CAS expenditure for edX on-prem server and services set up			20,000	60,000
21.				0	0
22.				0	0
23.				0	0
24.				0	0
25.				0	0
26.				0	0
Equipment (hardware, software & other equipment here):		Purpose (if not obvious)		\$0	\$0
27.				0	0
28.				0	0
29.				0	0
30.				0	0
31.				0	0
Subtotal, OTPS Expense				\$20,000	\$85,000
GRAND TOTAL				\$20,000	\$109,300

2019 Tier 2 - Genesee Community College Justice Technology Center

Campus: Genesee CC

PI: Karen Wicka

Abstract: In this ever-changing world, a technology trained workforce is essential, especially in criminal justice. Law enforcement agencies are increasing partnering with learning institutions to ensure that prospective employees possess the necessary technological skills for employment. This application requests support for a Justice Technology Center to prepare students for the multiple technological skills necessary to maximize performance in the criminal justice field. We propose partnering internally with the Rural Police Academy, the Paralegal and Campus Safety departments, and externally with county sheriffs' departments and with the New York Department of Homeland Security and Emergency Services to create a fully immersive learning environment where students actively participate in state-of-the-art training, providing opportunities for students to practice procedures in a safe environment. A 911 Simulator with a corresponding interactive curriculum will not only encourage students to utilize higher-order critical thinking but will increase enrollment and retention rates by encouraging interactive engagement in both teaching and learning. A stackable micro-credentialing certification also will be created, enabling students to complete courses earning "badges," combine "badges" to pursue a Criminal Justice Certificate or continue to pursue a Criminal Justice A.A.S. degree. All implementation and planning processes, interactive curriculum, materials and project outcomes will be digitally shared through Open SUNY and at various academic conferences throughout the State. This Justice Technology Center will be a prototype for the creation of similar active learning environments and other emergency telecommunicator certification programs throughout the SUNY system.

Collaborators

- Jay Bushen is a full-time faculty member for the Criminal Justice program at Genesee Community College. His primary area of concentration is Policing, Criminal Investigations and Corrections. As a full-time faculty member, Jay prepares and presents lectures, assesses student performance throughout his courses, instructs various on-line courses and advises students with career selections. Jay graduated from SUNY Buffalo State College receiving a Bachelor of Science degree in Criminal Justice. He was also a member of the basketball team. He also went back to college as a non-traditional student to pursue and attain his Master of Art degree in Social Policy from SUNY Empire State College. Prior to becoming an educator, Jay was a 20-year veteran of the Rochester Police Department. He served in a wide variety of roles in the police department including a patrol officer, a member of the Crime Scene Technician Unit, a member of the Bomb Squad and a member of the License Investigation Unit. He was a key component of many different investigations and gave vital testimony in numerous important court cases. After Jay retired as an officer in the Rochester Police Department, he was employed by the Monroe County District Attorney's Office as a

Violent Felony Offense Investigator. During his time in the DA's office, he was responsible for coordinating evidence for courtroom presentation. He worked closely with the Assistant District Attorneys in identifying, preparing, organizing and assisting them in court with evidence that was vital in successful prosecutions. He was also responsible in compiling statistical data for the District Attorney, issuing subpoenas, and arresting material witnesses. He also implemented the first digital evidence tracking system for the Office. While working as a full-time faculty member at Genesee Community College, Jay has been a very active member of the institution. He has volunteered to participate on many different committees. He runs the Internship program where he pairs students with various criminal justice agencies in order for the student to get real-life experience in the criminal justice field. In addition to faculty responsibilities, Jay also works closely within the local criminal justice community. He attends countywide Criminal Justice Action Committee meetings each month. He has a great working relationship with these criminal justice agencies, which will benefit the collaborating required with this project proposal.

- Steven C. Sharpe graduated with a B.S. History degree from the United States Air Force Academy in 1997 as a 2nd Lieutenant in the United States Air Force. He received a M.A. Education degree from Central Michigan University in 2001. In 2018 he earned a Doctor of Education in Executive Leadership from St. John Fisher College. After 8 years of service as an Intelligence Officer, he began his career as the Genesee County, NY Director of Emergency Communications supervising the county 9-1-1 center, managing the public safety radio system, and administering public safety information technology implementations. He is chair of the Federal Communications Commission Public Safety 700 / 800 MHz Region 55 (WNY – Buffalo) Planning Committee and vice chair of the Finger Lakes Regional Interoperable Communications Consortium. He is a member of the New York State Communications Interoperable Working Group and Next-Generation 9-1-1 Working Group. In the March/April 2019 issue (Issue 7.1) of Journal of Emergency and Dispatch and Response, his study on 911 Leadership and Quality Improvement will be published.

Learning Objectives:

Goal 1:

Use technology to build a collaborative and active learning environment that will not only enhance pedagogy and encourage interactive engagement in both teaching and learning but will encourage students to utilize higher-order critical thinking, leading to an increase in both enrollment and retention rates at the learning institution.

Goal 2:

Create stackable micro-credentialing opportunities for students to increase potential employability and provide additional opportunities for currently employed emergency telecommunicators to achieve a Certificate or A.A.S. degree in Criminal Justice.

Goal 3:

Collaborate with internal departments, local criminal justice agencies and state agencies to create a prototype for an emergency telecommunicators certification process which will serve as a model for additional SUNY institutions throughout the State.

Amount Requested: \$20000

Review Scores: <R1> 100 <R2> 97 <R3> 89 **AVG** = 95.33

Narrative Comments:

(R1) Yes I believe they made their case of why this idea should be funded. My suggestion is when speaking about micro-credentials, identify what the competencies are that the students will demonstrate in order to earn them. Are they predefined or are they new micro-credentials? What will the first 3 be that students can earn? (R2) This is an excellent idea and there is clearly a justifiable need. The fact that it addresses multiple goals and objectives related to students, the institution, and even the community makes it that much stronger. The fact that the institution is willing to devote specific space and to match the funds (and then some) that are being requested shows great institutional support and commitment. (R3) This is a well developed and innovative proposal. The applicant will develop a Justice Technology Center which will simulate various scenarios faced by criminal justice professionals. This application has broad support from the institution as well as the law enforcement community and therefore has a high potential for success. The applicant proposes to develop this project as a prototype which could then be used to scale up across SUNY, so the project has broad impact. The applicant also details a microcredentialing/ badge system which would expand training to individuals currently in the field. The expertise of the PI and other partners on this proposal is more than adequate for the scope of work. The time line seems tight...but doable. Of particular note, it the applicants collaboration and support with outside law enforcement agencies including Homeland Security. The budget also reflects a more than 50% match by the institution which is also notable.

Project Assessment Comments:

Looking at specific students learning outcomes like critical thinking as well as institutional goals like student retention make this proposal much stronger, in my opinion. In addition, the community support really strengthens the need for these skills in the actual job. Providing

students with this kind of knowledge before they graduate is a win-win all the way around. ; Overall the assessment and communication plan is good. I see you believe that you would like to use enrollment and retention rates to measure success..there are many factors that could change this....how would you identify that this addition impacted enrollment?; The project will assess retention of current CJ students, microcredentialing and collaboration with outside agencies. The applicant will share the prototype broadly throughout SUNY. This innovative approach to preparing criminal justice professionals has the potential for transformative impact in this field.

Other Comments:

This is a strong project and the information was very clear and comprehensive. It addresses a number of needs: locally, institutionally, and across the region. I look forward to learning more about this project in the future.; I look forward to the successful development of a prototype so our institution can duplicate your good efforts!

Planning Grant Comments:

This project absolutely aligns with current trends in both college and industry. Including additional SUNY institutions in future iterations makes a great deal of sense.

Project Narrative:

In this ever-changing world, a technologically trained workforce is essential, especially in the fast-paced criminal and civil justice fields. Criminal justice agencies have expressed an interest in increasing students' technological skills prior to prospective employment. To increase these skills, public safety agencies are increasingly partnering with learning institutions to assure that prospective employees are exposed to many of the newest criminal justice-based technologies (see Letters of Support). Genesee Community College's (GCC) Criminal Justice program will partner internally with the Paralegal Department and the Public Safety Office and externally with the county sheriffs' departments and other criminal justice agencies in the Finger Lakes Region to create a fully immersive learning environment where GCC faculty and experts from law enforcement collaborate in providing students with simulated state-of-the-art criminal justice procedures and protocols in a realistic but safe environment. GCC requests support for the creation of this unique hi-tech learning laboratory to prepare students for the multiple technological skills necessary to maximize performance in the legal field. This GCC Justice Technology Center also will serve as a model for law enforcement programs at other SUNY institutions

Research studies have concluded that active learning leads to increased grades and retention of students in the science and math fields (Freeman et al, 2013; Haak et al, 2011). That same

principal also applies to the social sciences (McCarthy and Anderson, 2000). The creation of an active learning environment, combined with interactive content, increases engagement in both teaching and learning. It encourages students to utilize higher-order critical thinking and increases their interest in the material. An active learning environment also can improve student grades and postsecondary institution retention rates.

Our proposal requests resources to purchase a 911 Simulator to integrate into an active learning environment that also features 360 and go pro cameras to simulate crime scenarios. Local criminal justice agencies and the NYS Department of Homeland Security and Emergency Services have expressed the need for training opportunities for prospective and current emergency telecommunicators (see Letters of Support). All emergency telecommunication personnel are required to complete a basic telecommunicator course within twelve months of being hired, covering topics which may include legal aspects, technologies, call classification, stress management, and the incident command system. Our Justice Technology Center will offer a micro-credentialing framework via a state-of-the-art 911 simulator which will be combined with a New York State and a nationally approved emergency communicator curriculum. This combination will enable students to receive numerous transferrable certifications beneficial to anyone pursuing emergency telecommunications careers within New York and throughout the nation. Students who master various technologies within the classroom will earn a stackable micro-credentialing certification. Students presenting this certification as evidence of employability skills will have a distinct advantage over uncertificated applicants.

The micro-credentialing process will provide multiple options to the students. The basic emergency communications course will provide students with NYS certification for the basic telecommunicator course required by current 9-1-1 standards. Students also can receive Incident Command Systems (ICS) certifications in existing Homeland Security courses. An advanced emergency communications course will provide additional certifications, including suicide intervention, crisis intervention and/or active shooting training. The learning environment in the Justice Technology Center will offer students with multiple certification options: completing one or more of the basic certification courses earning “badges;” combining earned “badges” with additional criminal justice courses to pursue a Criminal Justice Certificate; or continuing with additional general education courses to receive an A.A.S. degree in Criminal Justice.

Stackable micro-credentialing also will provide an opportunity for currently employed emergency telecommunicators who work in regional law enforcement departments. Employees who already possess their basic certifications in emergency telecommunications can

earn college credit for prior learning. Students can apply these prior learning credits in pursuit of a Certificate or an A.A.S. in Criminal Justice. Providing currently employed individuals with an educational pathway, without committing to a full-time program, will increase enrollment and retention in GCC Criminal Justice courses.

The vision for the Justice Technology Center is to provide a collaborative learning environment where students are fully engaged in active learning. To achieve this vision, the project will be completed in multiple phases (reflected in the accompanying timeline). The initial phase will begin over the Summer of 2019. During this time period, remodeling of an existing classroom will be completed to provide adequate infrastructure for future technology. In the Fall of 2019, collaborative learning tables with previously purchased technology, including a 360 OSCAR Camera, two Go Pro Cameras and editing software, will be integrated into the room. Students will use this interactive technology in collaborative and interactive assignments as a way to accomplish specific course learning objectives. To enhance interactive learning, funding from this grant will be used to purchase additional interactive technology, specifically a 911 simulator, featuring realistic engagement scenarios.

Our initial funding will be utilized to begin purchasing technology for the Justice Technology Center. As needs emerge in the criminal justice field, similar micro-credentialing will be developed with additional purchases of technology. The Justice Technology Center will foster internal partnerships with the College's Rural Police Academy and Public Safety Office. GCC also envisions scaling up the project with increased partnerships between GCC, law enforcement agencies and education providers in the Finger Lakes Region as well as collaborating with additional SUNY institutions around the state. The long-term goal for the Justice Technology Center is for it to become a prototype for criminal justice programs throughout the state and possibly the nation. This model also could be integrated into other social science programs that have interactive learning pedagogies.

GCC's FACT2 representative will disseminate all materials through the SUNY Workplace, including the vision and development process, all interactive curriculum, materials and project outcomes, modeling our innovative concept to other SUNY institutions. Moreover, the GCC faculty and law enforcement partners will share all implementation and planning processes, interactive curriculum, materials and project outcomes at numerous conferences across the state. As required by the IIT Grant, the project will be shared at the CIT Conference at SUNY Purchase. The Criminal Justice professors will submit a proposal to present at the annual Criminal Justice Educators' Association of New York State conference and our partnering Sheriff's Department will present at the New York State 911 Coordinators' Association Biannual Conference.

The success of the Justice Technology Center will be assessed on multiple levels. Student basic competencies, such as multitasking, critical thinking and technology competency will be assessed through successful completion of various active learning scenarios. In addition to assessing students' individual skills, overall student performance in individual courses can be monitored and assessed. The Center's success also may be measured in increased program retention rates. An increase of both employability and employment upgrade status of students upon completion of the certifications will be measured via graduate surveys conducted by GCC.

An increased enrollment rate will be a measurable assessment of the success of the Justice Technology Center. Genesee Community College will promote the state-of-the-art Justice Technology Center with the objective of attracting additional students into the Criminal Justice program. With opportunities to achieve credit for prior learning, GCC will measure the increase of individuals currently employed in the criminal justice field who return to receive certifications and degrees.

The development of the Justice Technology Center to connect students with cutting-edge technology will enhance pedagogy through a fully interactive and collaborative learning environment. In addition, the Justice Technology Center will open doors to currently employed individuals, providing stackable micro-credentials for career pathway success. Reimagining the traditional Criminal Justice curriculum in a new collaborative and interactive pedagogy leads to increased enrollment, retention, higher levels of critical thinking and employability for students. The enhanced Criminal Justice curriculum also promotes increased regional partnerships across the law enforcement community as well as emerging partnerships realized when the curriculum is shared via Open SUNY.

**Innovative Instruction Technology Grant Application
Proposed Project Budget**

Complete grey-shaded cells only; be sure budget narrative fully describes planned expenses and campus match.

** Campus Match: examples are included in RFP with Tier 2 (25%) and Tier 3 (50%) award descriptions.

Refer to this IITG FAQ for more budget details: <http://commons.suny.edu/iitg/budget-questions/#bqfn1>

Line Item	Description	Type: Faculty, Staff or Student	Effort (Est. FTE or hours)	IITG Grant Funding Request	Campus Match**
Personal Service/Personnel (indicate name, role & campus if known)					<i>Required for Tier 2 & 3</i>
1.			0.0	0	0
2.			0.0	0	0
3.			0.0	0	0
4.			0.0	0	0
5.			0.0	0	0
6.			0.0	0	0
7.			0.0	0	0
8.			0.0	0	0
9.			0.0	0	0
10.			0.0	0	0
11.			0.0	0	0
12.			0.0	0	0
13.			0.0	0	0
Community Colleges Only: Fringe Benefit Expense (may be funding request OR campus match)				0	0
Subtotal, Personnel Expense				\$0	\$0
Other-than-Personal Service/Personnel (OTPS)					
Supplies & Materials Items:		Purpose (if not obvious)		\$0	\$0
14.				0	0
15.				0	0
16.				0	0
17.				0	0
18.				0	0
Travel (list trips; OK to group trips for like purpose)		Purpose (if not obvious)		\$0	\$1,850
19.	(2) Attend Criminal Justice Educators Association of NY State Conference	Sharing of Project		0	850
20.	(1) Attend New York State 911 Coordinators' Association Biannual Conference	Sharing of Project		0	1,000
21.				0	0
22.				0	0
23.				0	0
Services (provide vendor name if known):		Purpose (if not obvious)		\$0	\$0
19.				0	0
20.				0	0
21.				0	0
22.				0	0
23.				0	0
24.				0	0
25.				0	0
26.				0	0
Equipment (hardware, software & other equipment here):		Purpose (if not obvious)		\$20,000	\$22,383
27.	911 Simulator			20,000	10,000
28.	Go Pro Cameras and Editing Software				927
29.	OSCR 360 Camera and Software			0	11,456
30.					
31.					
Subtotal, OTPS Expense				\$20,000	\$24,233
GRAND TOTAL				\$20,000	\$24,233

2018 Tier 1 - STEM Job Skills Development in a Competency Based Education (CBE) Model

Campus: Empire State College

PI: Nathan Whitley-Grassi

Abstract: This project will develop a plan and designing a series of competency-based resources that will facilitate workforce development and learning for STEM students, with a particular focus on those students who have cognitive disabilities. The proposed project will serve as a proof of concept for a larger-scale project addressing needs for STEM workforce development for all SUNY students and examine CBE as an instructional model for students with some forms of cognitive disability. Further, this project would organize a one-day symposium on CBE in use at SUNY, hosted at Empire State College. This event would allow a forum to discuss this and other SUNY CBE projects as well as provide opportunities for researchers and SUNY faculty to network and form supportive communities of practice. Specific focuses or tracks at the symposium could include; CBE in STEM, CBE for workforce development, CBE for students with disabilities, and applications of CBE for adult and non-traditional students.

Collaborators *Internal*

- Dr. Nan Travers, Director of Center for Leadership in Credentialing Learning
- Dr. Mary Mawn, Science Math and Technology Faculty – Microbiology
- Dr. Kevin Woo, Science Math and Technology Faculty – Animal Behavior
- Dr. Audi Matias, Science Math and Technology Faculty – Geology
- Dr. Linda Jones, Science Math and Technology Faculty – Environmental Science
- Dr. Diane Shichtman, Science Math and Technology Faculty – Information Systems
- Allison Moreland, MS is an Educational Technologist at Empire State College based in Rochester.

External:

- Shaun Hoppel, MA has trained in the use of assistive and adaptive technologies at the Center for Assistive Technology located at SUNY Buffalo.

Learning Objectives:

Goal 1:

To research and document the impact of CBE on teaching STEM skills for workforce development. The research would include effectiveness of CBE in skills-based learning outcomes and to identify areas to design and develop content to support these learning outcomes. STEM skill modules in some of the following areas will be researched, designed and piloted. Laboratory safety, Laboratory skills, Infection control, Scientific Methods, and/or Critical thinking.

Micro-credentialing will be examined and implemented to provide transferable competency to participants.

- a. Create a literature review on CBE, learning supports for cognitive disabilities and STEM Education
- b. Collaborate with Subject Matter Experts
- c. Create learning objectives and competencies for proposed CBE model
- d. Design and build CBE Learning Module
- e. Implement Micro-credential model

Goal 2:

To design and implement the research measuring impact of CBE on STEM learning for all students as well as a subset of students who self-identifies as cognitive impairment populations. The research would include key factors that facilitate learning among this population of students, such as best practices.

- a. Design study on perceptions/efficacy of CBE model
- b. Receive IRB approval
- c. Collect data on student success and completion

Goal 3:

To develop a supportive community of practice around CBE instructional models by organizing a one day symposium on CBE in use at SUNY hosted at Empire State College. This event would allow a forum to discuss this and other SUNY CBE projects as well as provide opportunities for researchers and SUNY faculty to network and form and reinforce supportive communities of practice. Specific focuses or tracks at the symposium could include; CBE in STEM, CBE for workforce development, CBE for students with disabilities, and applications of CBE for adult and non-traditional students.

- a. Plan a one-day symposium on CBE at SUNY
- b. Identify potential topics that would support development of learning communities within CBE, such as workforce development, STEM, accessibility/disability.
- c. Recruit leaders in the field to host and present at the symposium.

Amount Requested: \$10,000

Review Scores: <R1> 100 <R2> 95 <R3> 98 <R4> 98 **AVG = 97.75**

Narrative Comments:

(R1) The project narrative is very strongly written and supported by cited research. ; The project and budget narratives were well crafted. They clearly and effectively laid out the purpose and methods for the project. ; The applicant definitely "made their case" in a thorough and strong

proposal. (R2) The narrative was very thoughtfully written and did an outstanding job of describing what the project is, what it entails, the gap it fills, including evidence to support, and how it fits within the SUNY Excels Framework. I like that it builds upon a previous IITG. (R3) The budget narrative also did an outstanding job describing what specifically the funds were needed and providing justification for them. (R4) While conference travel beyond CIT was mentioned in the communication plan there is no funding mentioned for that.

Project Assessment Comments:

(R1) The PI clearly has a strong background in this area and has the expertise to follow-through on the research outcomes and assessments presented in the proposal. Beyond CIT, there is a clear plan in place for offering a SUNY-wide symposium to share results and continue the discussion on this topic. The PI plans to further expand the scope of this project through proposals that respond to current national grant programs and RFPs. (R2) The assessment and communications plans were both clear and showed how project assessment would be used to grow and improve later iterations of the project (R3) The assessment and Communication plans were well thought out and clear. (R4) I liked that the assessment plan addressed each of the objectives and how specifically each will be assessed. There was a general overview of how it will be assess but further details would be helpful. For example, it says objective 2 will be assessed through the completion of a research study but doesn't provide detail on what this study will look like. I appreciated the assessment table that was included. The communication plan addressed that is will be communicated through the symposium as well as CIT and external conferences. The team might want to consider how it will be communicated to a broader audience outside of SUNY, especially if there is no available funding to attend external conferences.

Other Comments:

(R1) This is a strong proposal with clearly aligned objectives, and the expertise of the PIs and collaborators indicates that they are well-prepared to follow through on implementing and assessing this project. (R2) Budget documents did not come through and so I could not evaluate. (R3) Finally some color (via graphs) in a proposal! With all of the abbreviations (CBE, STEM, ad infinitum) it definitely perks up the application. :)

The proposers stated how this would be used as a pilot project for larger external funding. This tied with the assessment plan should help them achieve that external funding.

Project Narrative

Over the past several years SUNY Empire State College has demonstrated successes integrating Competency-Based Education (CBE) into the SUNY system. These have included the

IITG-funded CBE models for prior learning assessment and our CBE computer science courses. This project is proposed to serve as another perspective on the utility and application of CBE methodology for teaching and learning. This three-part project will serve to not only address several needs identified on a national stage, but to also help bring SUNY to the forefront of CBE research and development.

According to Leggett (2015), “A competency-based curriculum allows for effective student learning by providing a knowledge foundation prior to the performance of procedures.” CBE focuses on providing students with the knowledge and skills required to perform a task or procedure, providing students with the opportunity to practice a skill in order to achieve mastery. Mastery is demonstrated ability to perform a task independently, consistently, and effectively (Leggett, 2015).

CBE programs provide a learning experience that focuses on the success of each learner and encourages student growth through mastery of higher levels of competency in a given task. Because the focus of CBE is on developing skill in a given task, process, or procedure, student and instructor time is used efficiently to assess student skills, nurture student strengths, target skill gaps and challenges, and track and monitor student progress as evidenced by formative, summative, and performance-based assessment of learning (Torres, Scheopner, Brett & Cox, 2015; Garfalo & L’Huillier, 2016; Pichee, 2011). Development of a competency map encourages development of a curriculum that targets specific skill sets that have been identified by experts in the workplace and STEM instruction. Additionally, CBE encourages the use of individualized development plans, which is an area that SUNY Empire has excelled in throughout its 47-year history.

The first part of this project will plan and develop a series of competency-based resources that will facilitate workforce development and learning for STEM students, with a particular focus on those students who have cognitive disabilities. The proposed project will be used as a proof of concept for a larger project proposed to the National Science Foundation (or other national granting agency) in response to recent RFPs and Dear Colleague Letters including: Fundamental Research to Improve Science, Technology, Engineering, and Mathematics (STEM) Teaching and Learning, and Workforce Development for Persons with Disabilities within the Education and Human Resource (EHR) Core Research Program (ECR).

There is growing excitement about CBE as preparation for the workplace and job skills training, it has been identified as a desirable means of delivering learning to students. Employer attitudes toward CBE are generally positive by employers seeking to hire employees with experience (Franklin & Lytle, 2016). In part one, the project team would explore this in the area of STEM education, particularly in the areas of:

- a. Aligning competencies to educational goals.
- b. Increasing knowledge to support practical application.
- c. Training used in conjunction with affecting behaviors tied to competencies.
- d. Pre-assessing current skill set.
- e. Allowance for a self-paced curriculum.

Part two of this project is to design and implement the research measuring the impact of CBE on STEM learning for all students, as well as a subset of students who self-identify as having a

cognitive impairment. The research would include key factors that facilitate learning among this population of students, such as best practices. The investigative team suggests that students with cognitive-based learning disabilities are able to learn process-oriented skills through a process of instruction that involves (Jones, Wilson & Bhojwani, 1997):

- a. determining the concepts/skills to be learned.
- b. identifying the relationship between concepts and skills.
- c. organizing facts, concepts, and skills into logical hierarchies.
- d. developing sets of instructional examples that unambiguously illustrate the range of concepts and skills to be mastered.

The third part of the project would be to organize a one-day symposium on CBE in use at SUNY, hosted at Empire State College. This event would allow a forum to discuss this and other SUNY CBE projects as well as provide opportunities for researchers and SUNY faculty to network and form supportive communities of practice. Specific focuses or tracks at the symposium could include; CBE in STEM, CBE for workforce development, CBE for students with disabilities, and applications of CBE for adult and non-traditional students. This project will make use of the work performed in a previously-funded IITG project, Designing Competency-based PLA Pathways to Scale Up Completion and Learner Success, which also uses the Sagen (formerly FlatWorld) Cognify Competency-Based Education (CBE) platform to design and deliver CBE.

Educational Technologists with expertise in accessibility and accommodations will work with faculty subject matter experts to research and develop a pilot program. Proposed research will include best practices for curriculum design for learners with cognitive disabilities, necessary STEM-essential skills, and potential target audiences for the curriculum. Potential topic areas could include:

- Laboratory Safety
- Laboratory Skills
- Infection Control
- Scientific Methods
- Critical Thinking

Subject matter experts (SMEs) and Competency Developers (CDs) will collaborate both in person and at a distance to develop and implement CBE curriculum. A one-day competency development retreat will be held to bring SMEs and CDs together to kick off the development and planning of curriculum. This one-day event is vital to build connections between SMEs and CDs and create collaborative working relationships that will span the full project. SMEs may include STEM teaching faculty, administrators, and/or industry professionals.

The project fits within the IITG program goals of advancing the SUNY Excels Framework, notably in the area of Inquiry, which, “encourage(s) and facilitate(s) basic and applied research for the purpose of the creation and dissemination of knowledge vital for continued human, scientific, technological and economic advancement. As a result, SUNY seeks to increase external investment in SUNY research in order to continue to increase the level of confidence external entities have in SUNY as a system, its institutions, faculty, and programs (2017).” This proof of

concept will be used to seek external funding to build out a larger CBE workforce development project, as well as further research in STEM education for students with cognitive disabilities. The proposed plan for implementing the curriculum is to offer the course at no charge to individuals in the community who want to learn a particular skill. This project would provide training to up to 100 participants from across SUNY, but special recruitment will be done through offices of Accessibility to allow outreach to students receiving services who may benefit from this program. The program would implement micro credentialing, such as Credly, which is supported by SUNY, to provide credibility and motivation through micro credentialing for students to complete the curriculum as suggested by recent reports from the SUNY Microcredentialing task force.

References:

- Franklin, C. & Lytle, R. (2015) Employer Perspectives on Competency-Based Education. Garfalo, Blaine T; L'Huillier, Barbara. *Academy of Business Research Journal*; Gulfport1 (2016): 100-116. Retrieved 7/13/2016 from <http://eric.ed.gov/?=ED557615>
- Jones E., Wilson R., Bhojwani S. (1993). *Mathematics Instruction Secondary Students with Learning Disabilities*. (pp. 151-163). In *Journal of Learning Disabilities* (s Vol. 30 pp.151-163)
- Leggett, T. (2015). Competency-Based Education: A Brief Overview. *Radiologic Technology*, 86(4), 445-448.
- Pichee, D. (May 10, 2011). *How to Create a Competency-based Training Program*. Retrieved from <http://slideshare.net/BizLib/how-to-create-a-competencybased-training-program>
- Torres, A., Brett, J., & Cox, J. (2015) Competency-based learning: definitions, policies, and implementation. Regional Educational Laboratory Northeast & Islands. Retrieved 7/13/2016 from <http://eric.ed.gov/?id=558117>

Line Item	Description	Type: Faculty, Staff or Student	Effort (Est. FTE or hours)	IITG Grant Funding Request	Campus Match**
Personal Service/Personnel (indicate name, role & campus if known)					<i>Required for Tier 2 & 3</i>
1.	Nathan Whitley-Grass - PI (Assistant Director for Educational Technology)	Staff	0.05	0	3,335
2.	Allison Moreland - CO-PI (Educational Technologist)	Staff	0.05	0	2,495
3.	Shawn Hoppel - CO-PI (Educational Technologist)	Staff	0.05	0	2,575
4.					
5.				0	
6.				0	0
7.				0	0
8.	Student Assistant for Administrative work	Student	250 hrs	0	2,500
9.	Project Management - Extra Service	Staff	50 hrs	1,500	0
10.				0	0
11.	Support from System Admin for integration	Staff	0.0	0	2,575
12.				0	0
13.				0	0
Community Colleges Only: Fringe Benefit Expense (may be funding request OR campus match)				0	0
Subtotal, Personnel Expense				\$1,500	\$13,480
Other-than-Personal Service/Personnel (OTPS)					
Supplies & Materials Items:		Purpose (if not obvious)		<i>\$150</i>	<i>\$150</i>
14.	Mailing & Printing for Program Advertising	Symposium and Recruitment		150	150
15.				0	0
16.				0	0
17.				0	0
18.				0	0
Travel (list trips; OK to group trips for like purpose)		Purpose (if not obvious)		<i>\$3,400</i>	<i>\$500</i>
19.	Travel to CIT for PI and Co-PIs	PI + 1 Co-PI		1,000	0
20.				0	0
21.	Travel to meet with collaborators on Competency Development			400	0
22.	Symposium Travel for invited speakers			1,000	0
23.	Competency development retreat - Travel & Lunch			1,000	500
Services (provide vendor name if known):		Purpose (if not obvious)		<i>\$4,950</i>	<i>\$2,250</i>
19.	Sagece CBE Platform (100 seats for Approx 3 months)			3,000	0
20.	Sagece Design Consultation (\$150/hour)			1,500	0
21.	Video Creation and Editing			0	750
22.	Closed Captioning Services			450	0
23.	Video Hosting and Distribution (Kaltura)			0	1,500
24.	Symposium catering for lunch (50-75 attendees)			1,000	0
25.	Symposium site and technical costs			0	1,500
26.				0	0
Equipment (hardware, software & other equipment here):		Purpose (if not obvious)		<i>\$0</i>	<i>\$5,000</i>
27.	Video Equipment (Camera & Computers provided by ESC, mic cables and mic)			0	1,000
28.	Equipment (and Tablets)				2,000
29.	Camtasia (x2) Articulate Storyline (Provided by ESC) for content development				2,000
30.				0	0
31.				0	0
Subtotal, OTPS Expense				\$8,500	\$7,900
GRAND TOTAL				\$10,000	\$21,380

2019 Tier 1 – From Concept to Final Product: The Design and Fabrication of Innovative Musical Electronic Devices to Enhance Student Learning

Campus: Oneonta

PI: Dr. Michael Faux

Abstract: The historical connection between music and technology represents a crossroads of creativity, innovation and entrepreneurship. Recently, collaborative spaces such as Makerspaces and Fablabs have gained popularity by providing the tools and spaces that facilitate this connection. This project aims to create a learning space in which students can collaboratively design and construct novel electronic instruments, effects and sound processors. Through a partnership between the Music and Physics Departments, students from both disciplines will benefit from complementary skillsets and gain valuable experience that is highly sought after in the job market. The project will allow students to bring an innovative idea from concept to a workable product that can be tested, analyzed, improved and potentially marketed. It will encourage further research in this growing field and promote collaboration between the humanities and sciences, introducing new pedagogical practices and providing students with valuable experience in their liberal arts education.

Collaborators

- Gavin Vitale, Instructional Support Technician / Adjunct Lecturer, School of Arts and Humanities / Music Department
- Gavin Vitale earned a BS and MS in electrical engineering from the Polytechnic Institute of NYU, and has extensive experience in electronic circuit design and construction. He currently serves as the technician for the Music Department, overseeing all technical aspects of the music studios and equipment. He has recently taught courses on Musical Electronics and Vacuum Tube Amplifiers, and previously worked as an Electrical Engineer with the New York City Transit Authority. He will participate in the project as the Music Department faculty representative, working with students enrolled in MUSC 227 and 327 Studio Assistant courses, as well as a related Special Topics course on Musical Electronics.

Learning Objectives:

Goal 1:

The first learning objective is to facilitate the development of skills in product design, construction, testing, and marketing for students from both science and arts disciplines.

Goal 2:

The second learning objective is to establish a multi-disciplinary collaborative environment that provides tools to students to collaboratively design and develop an innovative products.

Goal 3:

The third learning objective is to promote the cross-pollination of ideas and skillsets between students in the Music and Physics Departments, with the idea of scaling the project to include other disciplines.

Amount Requested: \$9990

Review Scores: <R1> 92 <R2> 89 <R3> 92 **AVG** = 91

Narrative Comments:

(R1) It is a well researched and thought out project, I really like that the project is based on connecting the concepts of physics and music. The team integrated pics wherever necessary and that helped in understanding. (R2) Excellent use of technology to forward applied learning. Good overall narrative as reader I am not sure how this translates to other uses because is it process or product that is the goal? (R3) This is a unique project that brings interdisciplinary experiential learning to physics and music majors. It is a forward facing project that takes into account the trends in the music industry and promotes collaboration and exchange of knowledge between two disciplines. The budget narrative looks good for the pilot project, but I recommend reporting back with a plan on how to sustain ongoing supply of consumable materials needed for the project.

Project Assessment Comments:

Assessment plan can be a little better, the team can clarify what it means for a product to be a "possible case for marketability." and what do they mean by utility and feasibility. Maybe informing the reader on some of the benchmarks will help.; Concerns that the assessment criteria is very broad and vague. This project involves Music and Physics courses in an interdisciplinary project. It should be clear how the project is being assessed based on each discipline, as well as a consistent criteria of success that can be assessed for all future students. This would make this project sustainable and adaptable for future faculty and other SUNY campuses.; The assessment plan is lacking in measurable outcomes. Are you establishing a multi-disciplinary collaborative environment that is generalizable to other disciplines? How does one measure *promotion* of cross-pollination? Why not measure student

learning/active learning scenario? Also remember that a lot is learned through the opposite of success... especially in design and development!

Other Comments:

While the proposal could have been stronger - the idea is worthy and fits into active learning, STEM, novel tech, etc. I look forward to seeing what the students create.

Planning Grant Comments: good

Project Narrative

Musicians are always seeking new and innovative ways to perform and record their music. Instruments such as the Analog Synthesizer and other musical effects have created unique sounds for decades through the use of specially designed electronic circuits. Genres such as Rock, Rap/Hip-Hop and Electronic Dance Music (EDM), among others, consistently rely on synthesizers and musical effects such as delays, distortion and other modulated sounds to create unique soundscapes. This has led to a recent resurgence of small companies creating musical devices for a rapidly growing market. In fact, according to a recent National Association of Music Merchants (NAMM) report, there has been nearly a 20% growth in analog synthesizer sales over the past several years (1). The recent 2019 NAMM Convention, which brought together over 115,000 industry professionals and over 2,000 music merchandise companies, indicates the continued strength of the industry. The 2019 conference offered options such as A3E (Advanced Audio + Applications Exchange), and talks such as “Innovations in Modular Synthesis” (2, 3) and “Advancements in Rapid Prototyping” which discussed cutting edge practices on quickly turning ideas into workable products (4).

In fall 2018, PI Faux and Co-PI Vitale, from the Physics & Astronomy and Music Departments, respectively, co-taught a class that combined a Music course (Introduction to Musical Circuits) and a Physics Course (Electronics/Circuits I). The concept was to teach students the fundamentals of electronics and electrical circuits, with a focus on musical applications. The course featured a project where students brainstormed ideas and designed and built devices such as synthesizers and guitar effects processors, culminating in a presentation to the class. Although the projects were functional, they were not permanently constructed, as they were built on solderless ‘breadboards’.

The unique fall 2018 experiment of teaching a combined Physics/Music class to an integrated population of students from seemingly distinct disciplines proved to be a great success. Both physics and music students demonstrably gained skills and knowledge that will inevitably contribute to their employability and eventual success, whether in engineering, sound engineering, music studio work, or other creative endeavors. Students in the class designed and built working breadboard prototypes of synthesizers, equalizers, effect pedals, and light displays that were impressive. However, at the end of the semester, these devices had to be dismantled because they were not soldered or hard-wired onto permanent printed circuit

boards, nor were these engineered into marketable packages. Clearly, if students may realize the crucial final steps to realizing their visions as permanent devices, great value will accrue to the education we provide. This proposal aims to allow students to turn ideas into permanent devices that can be showcased and used; the skills and knowledge attained in the class will transcend the abstract, thereby powerfully reinforcing the tangible utility of their education.

SUNY Chancellor Dr. Kristina Johnson included Innovation and Entrepreneurship as the first of four central themes in her vision for the SUNY system. This project integrates both innovation and entrepreneurship as central aspects by facilitating students' enhanced ability to be innovative. Allowing students to create devices that can be used and marketed provides the opportunity for them to use their creativity to foster innovation. A longer term goal is to use the infrastructure acquired through the IITG program to collaborate with our School of Business & Economics (expanding the collaboration to three of our four schools), towards a truly innovative entrepreneurial program on our campus.

IITG Project Goals and Implementation

The goal of this Tier 1 IITG project is to, first, establish a formal collaboration between the SUNY Oneonta Physics & Astronomy Department (including the 3/2 Engineering program) and the Music Department through the creation of a small, but complete rapid prototyping and design laboratory. This would allow students from multiple disciplines (including ~100 audio arts minors, ~75 physics majors, and ~50 3/2 engineering students) to digitally create a circuit board design and quickly fabricate it, leading to further testing, development and marketing, and to potential independent student research projects. The heart of this prototyping lab is the Printed Circuit Board (PCB) Milling Machine. A Computer Numerical Control (CNC) milling machine converts a set of programmed instructions into movements on a three-dimensional axis. This is similar to the way a 3D printer works, although the milling process is subtractive rather than additive. Blank copper boards can be loaded into the machine and a PCB that is designed in software can be etched out of the board. This leaves a circuit board that can be populated with electronic components and used indefinitely. This machine provides a vital element to the project, in that it allows the once fragile breadboarded circuit to leave the lab and enter the studio where they can be used as a permanent, useable device.

Once the PCB is created, the circuit is now robust and durable, but still requires some type of enclosure to make it a final product. Enclosures provide protection for the circuit and an aesthetically pleasing interface for the user. They can be fabricated using simple metalworking tools. Ideas for projects will be generated collaboratively, with each student giving input from their respective discipline. Use of the lab will be incorporated into the curriculum of the existing Electronic Circuits course (Circuits I & II), as well as the Musical Circuits curriculum. Opportunities for further collaboration exist in MUSC 227 and 327: Studio Assistant courses. These courses focus on topics related to the operation of the recording studios located within the SUNY Oneonta Music Department. Students from both the Physics and Music Departments can collaborate to design instruments and provide high quality recordings of their

compositions, providing valuable experience for the students and useful marketing material for promotion of their devices.

The IITG prototyping/design lab will benefit students in many ways. Conceptualizing a project, creating a workable design, fabricating that design and refining the final product is a valuable skillset. Students who have worked on such projects would be more marketable to employers post-graduation in that they can directly point to hands-on experience they gained while creating their devices. This is a critical asset for students entering any engineering or music technology-based field. The lab supports modes of inquiry in the form of collaborative, problem focused curriculum and builds competencies not currently offered at SUNY Oneonta (and possibly within the SUNY system).

Future Directions/Plans

This collaboration can be scaled in various ways, both on an inter- and intra-campus level. Departments such as Art or Fashion, in the form of mixed media pieces or wearable electronic fashions, could benefit from collaboration and rapid design/prototyping. Biology, Chemistry or other field and lab-based sciences could also benefit from design and construction of custom sensors or other data recording hardware. Likewise, all of the departments mentioned could collaborate amongst counterparts at other SUNY campuses, designing and building custom hardware for various needs. The digital nature of the circuit designs means that other cooperating schools could quickly send circuits via email to students or faculty at the prototyping lab for fabrication, making this a unique virtual lab.

References

1. "Player Demand for Greater Musical Expression Fuels Five-Year Growth of Analog Synthesizers." *NAMM.org*, 6 Dec. 2016, www.namm.org/news/press-releases/player-demand-greater-musical-expression-fuels-0.
2. "Innovation and Inspiration on Display at the Crossroads as the Music Products, Pro Audio and Event Technology Industry Convenes at The 2019 NAMM Show." *NAMM.org*, 28 Jan. 2019, www.namm.org/news/press-releases/innovation-and-inspiration-display-crossroads.
3. "A3E Schedule." *NAMM.org*, www.namm.org/thenammshow/2019/events/innovations-modular-synthesis. Accessed 13 Feb.2019."A3E Schedule." *NAMM.org*, www.namm.org/thenammshow/2019/events/innovations-modular-synthesis. Accessed 13 Feb.2019.
4. "Advancements in Rapid Prototyping." *NAMM.org*, www.namm.org/thenammshow/2019/events/advancements-rapid-prototyping. Accessed 13 Feb. 2019.

**Innovative Instruction Technology Grant Application
Proposed Project Budget**

Complete grey-shaded cells only; be sure budget narrative fully describes planned expenses and campus match.

** Campus Match: examples are included in RFP with Tier 2 (25%) and Tier 3 (50%) award descriptions.

Refer to this IITG FAQ for more budget details: <http://commons.suny.edu/iitg/budget-questions/#bqfn1>

Line Item	Description	Type: Faculty, Staff or Student	Effort (Est. FTE or hours)	IITG Grant Funding Request	Campus Match**
Personal Service/Personnel (indicate name, role & campus if known)					Required for Tier 2 & 3
1.	Michael Faux (PI)	Faculty	0.0	0	0
2.	Gavin Vitale (co-PI)	Faculty/Staff	0.0	0	0
3.			0.0	0	0
4.			0.0	0	0
5.			0.0	0	0
6.			0.0	0	0
7.			0.0	0	0
8.			0.0	0	0
9.			0.0	0	0
10.			0.0	0	0
11.			0.0	0	0
12.			0.0	0	0
13.			0.0	0	0
Community Colleges Only: Fringe Benefit Expense (may be funding request OR campus match)				0	0
Subtotal, Personnel Expense				\$0	\$0
Other-than-Personal Service/Personnel (OTPS)					
Supplies & Materials Items:		Purpose (if not obvious)		\$9,640	\$0
14.	PCB Mill + mill extras			4,140	0
15.	Dedicated laptop PC			1,000	0
16.	Electronic components, soldering irons			1,300	0
17.	Oscilloscope, signal generator, benchtop power supply			1,475	0
18.	Metal brake/shear, benchtop drill press, miscellaneous supplies			1,725	0
Travel (list trips; OK to group trips for like purpose)		Purpose (if not obvious)		\$350	\$0
19.	PI + co-PI participation in CIT 2020			350	0
20.				0	0
21.				0	0
22.				0	0
23.				0	0
Services (provide vendor name if known):		Purpose (if not obvious)		\$0	\$0
19.				0	0
20.				0	0
21.				0	0
22.				0	0
23.				0	0
24.				0	0
25.				0	0
26.				0	0
Equipment (hardware, software & other equipment here):		Purpose (if not obvious)		\$0	\$0
27.				0	0
28.				0	0
29.				0	0
30.				0	0
31.				0	0
Subtotal, OTPS Expense				\$9,990	\$0
GRAND TOTAL				\$9,990	\$0

