

Santa Fe Community College

Proposed Agenda Item

Governing Board Meeting

Complete this form and submit it to the Office of the President by **noon, thirteen days** before the Wednesday evening meeting of the Governing Board. If this form does not provide enough space, you may use an expanded version *as long as you follow the format specified below*. Please note: Subject line must always match both Agenda and Agenda Items.

Date of Board Meeting: 2/24/21 Date of This Proposal: 2/11/21

Check one: Information Item Action Item

SUBJECT: NSF EPSCoRE Aquamod Grant Application

RECOMMENDATION:

BACKGROUND/RATIONALE: Per Policy 1-31: Governing Board Financial Oversight, we are informing the SFCC's Governing Board about a National Science Foundation (NSF) EPSCoRE grant application: Modeling controlled environment aquaponic systems using big data from novel sensor networks.

The project seeks to create a sustainable model to grow the aquaponic community through train-the-trainer workshops, coordinated research and community data sharing and networking. This project will invest in the development and recruitment of diverse early career faculty, post-docs, and undergraduate researchers (student interns) to support project goals.

Estimated Cost and Budgetary Support (how will this be paid for?): All NSF grants allow SFCC to charge it's full 45.8% indirect cost rate (IDC) on salaries and benefits (estimated IDC is \$420,727 over four years)

RESOURCE PERSON(S) [name(s) and title(s)]: [Authorized person(s)/Originator]

Yash Morimoto, Asso. VP, Office of Planning and Institutional Effectiveness
Ann Black Grants Director,
Dr. Steve Gomez, PI and TATC Dept. Chair

SIGNATURES:

Or Black

2.11.21

Originator

Date

Gash Morimoto

2.11.21

Supervisor

Date

Gash Morimoto

2.11.21

Vice President or Other Cabinet-Level Supervisor

Date

PRESIDENT'S APPROVAL:

Bob Rely

2-11-21

Grants Update
Ann Black, Grants Director
February 2021

Per Policy 1-31: Governing Board Financial Oversight, we are informing the SFCC's Governing Board about a National Science Foundation (NSF) EPSCoRE grant application: RII Track-2 FEC: AQUAMOD: Modeling controlled environment aquaponic systems using big data from novel sensor networks.

SFCC is a subgrantee in this multi-institutional proposal (Dordt University – lead institution, SFCC, and Dakota State University) that seeks to research controlled ecosystem dynamics of combined aquaponics and hydroponic production facilities through state-of-the-art sensors. SFCC's budget share is \$1,339,346 over four years.

Dr. Stephen Gómez and Charlie Schultz are the SFCC principal investigators (PI). Dr. Stephen Gómez will devote one month per year to the project, and Charlie Schultz will devote three months a year to the project. Other grant-funded personnel are: lead aquaponics technician, assistant aquaponics technician, aquaponics post-doc (four post-docs over four years), and six SFCC student interns per year.

Project partners will collaborate to monitor AP (Aquaponics - aquaculture combined with hydroponics) systems in order to more fully understand controlled ecosystem dynamics. The project will also engage in capacity building efforts at two-year, minority-serving institutions (MSIs) and Tribal Colleges and universities to develop an effective AP-related data science/artificial intelligence (AI) curriculum and to provide roadmaps for the development of AP workforce development pathways.

Budget justification

A. Senior Personnel - \$95,710

Dr. Stephen Gómez - 1 month annually to lead Aim 2c, coordinate the AP educational component, and oversee the operations of the SFCC research projects. These efforts include leading and setting direction for analysis of the biological systems and assisting the PI in overall project direction. Dr. Gómez will participate in data analysis efforts, coordinating with the Aim 1 implementation team, lead faculty and post-doc development and mentoring efforts and serves as mentor/advisor to the postdocs at SFCC in curriculum development and pedagogy for Aim 2. The teaching load at SFCC for 9-month faculty (five, three-credit courses per semester; ten per year) necessitates a reduced teaching load to achieve the proposed goals.

R. Charlie Shultz - 3 months annually to lead Aims 1a and 1c, oversee the AP operations of the entire project, serve as the subject matter expert for the replicate AP systems. These efforts include overseeing the selection of plant, fish and nutrient systems for the project and assisting the PI in experimental design. Mr. Shultz will participate in data analysis efforts, coordinating with the Aim 1 implementation team, assist co-PI Gómez in curriculum development and pedagogy for Aim 2, and serve as liaison to the AP industry. The teaching load at SFCC for 12-month faculty (five 3-credit courses per semester; 10/year, and two 3-credit courses per summer) necessitates a reduced teaching load to achieve the proposed goals.

B. Other Personnel - \$608,333

Lead Aquaponics technician - (100% effort) to coordinate the systematic implementation of all of the new AP systems as part of the Aim 1a (coordinated AP experiments). The technician will be responsible for the set-up, operations and troubleshooting across all experimental sites, train the student interns in the AP facilities, and ensure the operations meet the needs of the commercial industry. This technician will advise in the coordinating of all supplies and experimental protocols, and be responsible for all SOPs, including greenhouse safety, for the project. This technician will work closely with the Lead Aquaponics technician at Dordt University and the entire Aim 1a leadership team.

Assistant Aquaponics technician - (50% effort) to coordinate the systematic implementation of the Aim 1a (coordinated AP experiments) effort oversee the daily operations of the SFCC AP systems when the Lead AP technician is off-site. The aquaponics technician will work closely with the Aim 1a leadership team and oversee the student interns on the SFCC campus. The technician will be responsible for daily operations, data collection and greenhouse safety. This technician will assist in the coordinating of all supplies, experimental protocols and SOPs, for the project.

Aquaponics/teaching post-doc - Full-time (100%, 9-month; \$49,000; 4 individuals over 4 years) research, teaching and outreach post-doc. The post-doc will work directly with all leadership personnel in Aims 1a, 1c and 2. Each post-doc will work closely with co-PI Gómez in developing pathways to advanced degrees (Aim 2c) and co-PI Shultz in AP system design and monitoring (Aim 1a). Each post-doc will prepare curriculum for two gen-ed courses (one online) at SFCC and one topics-course of the post-doc's choosing (in their field of expertise) under the mentorship of co-PI Gómez. Each post-doc will mentor 1 undergraduate student, serve on at least one faculty committee and attend the faculty senate.

Undergraduate student assistants - Six students for 450 hours per student during each academic year (150 hours/semester, including summer, at \$15/hour, 18 students/year). Students will be under the mentorship of co-PIs Gómez and Shultz and be supervised the AP technicians in daily operations of AP systems. The post-doc will mentor one student per semester.

C. Fringe Benefits – \$214,576

Total fringe benefits are budgeted at 36% of all senior and other personnel salaries from A+B, and 12% for student assistant salaries (B).

I. Indirect costs – \$420,727

Calculated on faculty/personnel salaries and benefits (A+B+C) at negotiated rate of 45.8%.

SUMMARY PROPOSAL BUDGET

Cumulative

ORGANIZATION Santa Fe Community College				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Stephen A Gomez				AWARD NO.	Proposed	Granted	
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)				NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
	CAL	ACAD	SUMR				
1. Stephen M Gomez - Co-Investigator	4.00	0.00	0.00		26,963		
2. Richard C Shultz - Co-Investigator	12.00	0.00	0.00		68,747		
3.							
4.							
5.							
6. () OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00		0		
7. (2) TOTAL SENIOR PERSONNEL (1 - 6)	16.00	0.00	0.00		95,710		
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. (4) POST DOCTORAL SCHOLARS	48.00	0.00	0.00		203,889		
2. (8) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	72.00	0.00	0.00		242,444		
3. (0) GRADUATE STUDENTS					0		
4. (72) UNDERGRADUATE STUDENTS					162,000		
5. (0) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					0		
6. (0) OTHER					0		
TOTAL SALARIES AND WAGES (A + B)					704,043		
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					214,576		
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)					918,619		
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT					0		
E. TRAVEL							
1. DOMESTIC (INCL. U.S. POSSESSIONS)					0		
2. INTERNATIONAL					0		
F. PARTICIPANT SUPPORT COSTS							
1. STIPENDS \$			0				
2. TRAVEL			0				
3. SUBSISTENCE			0				
4. OTHER			0				
TOTAL NUMBER OF PARTICIPANTS (0)				TOTAL PARTICIPANT COSTS	0		
G. OTHER DIRECT COSTS							
1. MATERIALS AND SUPPLIES					0		
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION					0		
3. CONSULTANT SERVICES					0		
4. COMPUTER SERVICES					0		
5. SUBAWARDS					0		
6. OTHER					0		
TOTAL OTHER DIRECT COSTS					0		
H. TOTAL DIRECT COSTS (A THROUGH G)					918,619		
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)							
TOTAL INDIRECT COSTS (F&A)					420,727		
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					1,339,346		
K. FEE					0		
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					1,339,346		
M. COST SHARING PROPOSED LEVEL \$ 0				AGREED LEVEL IF DIFFERENT \$			
PI/PD NAME Stephen A Gomez				FOR NSF USE ONLY			
ORG. REP. NAME*				INDIRECT COST RATE VERIFICATION			
				Date Checked	Date Of Rate Sheet	Initials - ORG	

C *ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET