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Application Summary

Competition Details

Competition Title: IRA Applications for 2021-2022

Category: Internal Funding

Award Cycle: 2021-2022

Submission Deadline: 11/12/2021 11:59 PM

Application Information

Submitted By: Jason Miller

Application ID: 887

Application Title: Mathematics Sciences Career Awareness Program

Date Submitted: 03/21/2021 10:30 PM

Personal Details

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Additional Applicant Email:

Additional Applicant Department:

Application Details

Proposal Title

Mathematics Sciences Career Awareness Program

Total Amount Request from IRA

15,990

Brief Activity Description

Program Context

This proposed activity is sponsored by the Mathematics Department is a creative response to the institutional challenges of recruitment, retention, and graduation. If successful it will be an essential facet of a quality our baccalaureate education in the mathematical sciences.

This proposed project is designed to serve the recruitment, retention, and graduation of students to the University and to the major, minor, and general education programs in the Mathematics Department. It also serves the goals of academic and professional excellence of the mathematics programs. Consequently, this proposed program advances institutional strategic initiatives of educational excellence (1.2, 1.7), inclusive excellence (3.6), and capacity and sustainability (4.1, 4.2).

Program Elements

Mathematics is a discipline with varied applications and that has a wide variety of career opportunities. Recent literature on broadening participation in STEM has shown that early exposure to information about career opportunities in mathematics dramatically increases student retention to mathematically intensive coursework (e.g., chemistry, computer science, experimental psychology, mathematics, physics). At his previous institution, this author led a very successful mathematics talent expansion program funded by the National Science Foundation that had career awareness as a centerpiece, and this proposal is an adaptation this University's needs.

This proposed program will pilot three activities for students that will open their eyes to satisfying and exciting careers that require a background in the mathematical sciences. First, the program will start a biweekly speaker series co-sponsored by Career Development Services that will bring local employers to campus* to give students advice on looking for and securing internships and employment. Second, the program will arrange one group field trip each semester that will take students to visit two employers that seek to hire people with the skills and habits of mind gained through the study of mathematics. Third, the program will offer an Etiquette Dinner each semester that will teach students how to participate with confidence in a business dinner, conference banquet, or other formal dining situation.

Speaker Series

Twice a month, the program will invite guests to campus to speak on some exciting aspect of careers in mathematics. Career areas of great interest include operations research (a.k.a., logistics), actuarial science (including both actuarial insurance and consulting), and modeling. Math-adjacent careers will also be considered include law, medicine, sales, insurance, auditing, and other areas. The guest will have a background in mathematics, and will be asked to tell their mathematics story. The guest will also give an overview of their employment sector and describe interesting aspects of their career area.

Before each presentation, the Mathematics Department will hold a tea where students, faculty, and guests can interact over coffee, tea, and stale cookies before the presentation. The author will introduce the speaker at the tea, and students will have an opportunity to ask them questions. Students will also be encouraged to ask questions during the talk.

Field Trips

We propose two fields trips. Each will bring a group of students to visit two employers that values a background in mathematics. Students will be bussed from campus for the on-site visits. Students will be briefed ahead of time on appropriate attire (business casual), background on the field trip hosts, and what they hope to learn during the visits. Each site will include an overview on the company that includes hints on how to secure an internship and how to apply for a job, a tour, and a mini-shadowing experience for students.

In the Fall, the field trip will be to two employers in Ventura County (e.g., AeroVironment and BMW Design). The Spring field trip will be to two employers in Los Angeles County and will require an overnight stay. The overnight stay will allow the group to prepare in-person at the hotel the night before.

Immersive field trips like these are shown to greatly increase a student's enthusiasm for and persistence in their study of mathematics.

Etiquette Dinners

Many students fear the idea of eating a formal meal with a potential employer or professionals senior to you in your field. The first-hand experience and gentle coaching gained through a sage 'etiquette dinner' banish that fear and allow students to engage in conference banquets, dinners with campus guests (e.g., during faculty hiring), and meals with co-workers. We will have University Auxiliary Services prepare a modest multi-course meal (e.g., salad, entree, dessert) with all the table settings, and we will hire a local 'expert' in etiquette who will

guide participants through the experience of sitting down, understanding the purpose of all the silverware and glassware, and how to pass items to others at the table, among other things.

Audience

All program elements will be of interest to students at all level of mathematics, from those in General Education course (incl. pre-Calculus, Calculus, Intro statistics) through upper-level courses in the mathematics major. The program will highlight the value of a major in mathematics, but it will also highlight the value a mathematics minor can bring to most all other choices of major. Statistics on career opportunities and earning potential along with anecdotes from faculty and campus guests will provide students with new motivation to persist toward success in their mathematics coursework.

Program Partners

In addition to the support of the mathematics program, this proposed project has the support of staff in Career Development Services who are eager to work with the Mathematics Department to make this project a success. They have run an Etiquette Dinner in the past, and are enthusiastic about offering more. Staff in Advancement and Alumni Engagement are also eager to help identify employers and alumni who are potential speakers in the series

* This proposal takes the optimistic view that the local health climate will allow face-to-face interactions between students and campus visitors, for example. If that is not the case, the program will be converted to be virtual and synchronous. Issues of conversion are not addressed in this proposal.

Activity or Event Date

09/9/2021

List all classes that relate to proposal

all courses with a MATH or STAT prefix

Learning Outcomes & Relation to Course Offering

This proposed project is designed to serve the recruitment, retention, and graduation of students to the University and to the major, minor, and general education programs in the Mathematics Department. It also serves the goals of academic and professional excellence of the mathematics programs. Consequently, this proposed program advances institutional strategic initiatives of educational excellence (1.2, 1.7), inclusive excellence (3.6), and capacity and sustainability (4.1, 4.2).

Is this activity off campus ?

No

Off Campus - Describe benefit brought back to campus

This proposed project is an on-campus project.

Program Element	Expense
Speaker Series	Speaker Honorarium
Speaker Series	Advertising: posters for campus, regional high schools
Speaker Series	Advertising: Mailing
Speaker Series	Public tea
Speaker Series	Parking
Field Trip	Bus rental
Field Trip	Bus rental
Field Trip	Group meal: de-brief
Field Trip	Group meal: Spring pre-visit
Etiquette Dinner	Food cost
Etiquette Dinner	Staging
Etiquette Dinner	Speaker honorarium

Description	unit cost
Honorarium for each speaker in the series	\$ 150.00
Posters with the schedule of speakers and how to join virtually. Distributed widely.	\$ 200.00
Sending posters to area high schools.	\$ 100.00
Cost of coffee, tea, and stale cookies for social time before the presentation.	\$ 25.00
Cost of speaker parking on campus	\$ 15.00
Cost of one day of bus rental for Fall Field trip	\$ 1,500.00
Cost of one day of bus rental for Fall Spring trip	\$ 4,500.00
Cost of group meal after site visits (\$30 per person, for 30 people)	\$ 900.00
Cost of group dinner before site visits (\$30 per person, for 30 people)	\$ 900.00
Cost of meal for each participant	\$ 50.00
Table cloths, seating, pipe-and-drape, A/V, glassware, flatware	\$ 500.00
Honorarium for the Etiquette coach	\$ 300.00

Fall units	Spring units	Total
4	7	\$ 1,650.00
1	1	\$ 400.00
1	1	\$ 200.00
4	7	\$ 275.00
4	7	\$ 165.00
1		\$ 1,500.00
	1	\$ 4,500.00
1	1	\$ 1,800.00
	1	\$ 900.00
30	30	\$ 3,000.00
1	1	\$ 1,000.00
1	1	\$ 600.00
		\$ 15,990.00