Channel Islands
CALIFORNIA STATE UNIVERSITY

Instructionally Related Activities Funds Request Fall 2015

IRA Funds Request for CERN internship

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Instructionally Related Activities Funds Request Summary

Project Sponsor	Ivona Grzegorczyk
Activity Title	CERN internship
Activity/Event Date	May 30, 2015
Date Funding Needed By	March 1, 2015
Previously Funded?	No
Semester/Year	—
Proposal #	—
Report submitted for previously Funded Activity?	—
Report submitted for previously Funded Activity	—
Additional Report #1	—
Additional Report #2	—
Additional Report #3	—
Additional Proposers	This is a part of CSU-wide program lead by Dr. Gao from Fresno
Academic Program(s) / Center Name(s)	Mathematics and Applied Physics
Estimated total Course Fee revenue	0
Amount Requested from IRA	$ 6,000
Estimated Number of Students Participating	2
Conditions and Considerations	International Travel, Risk Management Consultation
Brief Activity Description	Channel Islands has recently joined the CSU-wide Nuclear and Particle Physics Consortium (NUPAC) (http://zimmer.csufresno.edu/~yogao/ATLAS/CSU%20ATLAS%20Consortium.html), which offers students the opportunity to work and study on the ATLAS particle detector experiments of the LHC (Large Hadron Collider) at CERN for 10 weeks during the summer. CERN is the birth place of two Nobel Prizes and the World Wide Web. The 10 billion dollar LHC started collision in 2009. The ATLAS collaboration consists of ~3000 physicists from 38 countries, among them, ~500 US physicists from ~40 prestigious universities (Harvard, Yale, MIT, Columbia, UC-Berkeley, etc.). This offers our students outstanding opportunities to work at CERN and collaborate with top physicists, engineers and computer scientists. After a competitive process and coursework in physics, two of CI students Daniel Turner and Geordan Waldman were selected for a 10-week internship at ATLAS computing projects and attend the famous CERN Summer Student Lecture Series. They will work in science teams on particle physics projects, on improving algorithms and development of tools to monitor the sub-detectors, and analyze ATLAS data. LHC is one of the most exciting collaborative scientific projects in human history. This experience at CERN would prepare the students for professional success in an increasingly competitive, global, and multi-cultural society. ATLAS is committed to involving students, who will be inspired to study and appreciate science, and then go into many fields using their skills – including science, education, industry, finance, and public policy. The students' experience at CERN and LHC is clearly connected to the mission of CI, and would afford them a once-in-a-lifetime opportunity, which will also inspire other CI students.
Learning Outcomes and Relation to IRA to Course Offerings	The students already took special on-line nuclear physics course developed by NUPAC and open to all CSU students, to prepare themselves for the internship at CERN (at CI, they were enrolled in PHYS 497 Directed Studies (3 units)). They also improved their computer programming experience. The selection process was highly competitive. Our two selected students join a group of other 5 students from CSU for this CERN internship. Each student is also assigned to a research team and has an advisor at CERN. They will work on scientific projects, learning about particle physics and applications. They will present and write up their results. The internship itself will count for a further 3 units (as PHYS 492 Internship) Related courses: PHYS 497, PHYS 492 and the seminar MATH 499.

Description of Assessment Process	Each of the courses taken by students was assessed by homework assignments, a mid-semester test and a final test. The internship (PHYS 492) will be continuously assessed by rating the students' effectiveness and contributions to the ATLAS team, and by assessing a final presentation of their research work at an ATLAS meeting. (Information on past student projects can be found at http://zimmer.csufresno.edu/~yogao/CSU-ATLAS/CSUF-ATLAS-Research.html). On their return to CI the students will give a joint presentation of their work at the mathematics seminar open to all CI students, faculty and guests, as well as other venues (for example President's Circle). This way the impact of the campus and local STEM community will be quite significant. Their results will also be presented at local research conferences. In the past, CI students attending the internship published collaborative papers with CERN scientists, which is very prestigious!
Activity Budget	CERNbudget2015.xlsx
CIA Budget	CERNbudget2015.xlsx
CIA Proposal	CERN2015CIAA3InternationalGroupTravelProposal1.doc
Course Syllabus	—
CIA Certification	I certify that students attending this trip are not previous or repeat attendees of a prior International UNIV 392 Trip
Other Sources of Funding	$ 6,000 allocated from Lottery funds.
Target Audience/Student Marketing	The opportunity to intern at CERN was advertised by flyers posted throughout the CI campus, and at a presentation given by last year's interns at CI (Sept , 2014). Interested students were advised that they would need to enroll for two courses in preparation for the internship.
Bring Benefit to Campus	The students must pass the two preparation courses to qualify for the internship. They will formally apply for a place at CERN by February, and their skills will be matched to current research. Those with the best match will be chosen. This year 2 CI students were selected.
Sustainability	Nuclear physics leads to nuclear reactors that are very environment friendly. Students can include that in their presentations.
Program Chair/Director	ivona.grzegorczyk
Academic Affairs AVP	karen.carey
Acknowledgement	I acknowledge that I have reviewed and accepted the Conditions and Considerations herein. Please check off boxes as appropriate.

Program Chair/Director Approval

Approval	—
Name	—
Date/Time	—
Validation	—

Academic Affairs AVP Approval

Approval	—
Name	—
Date/Time	—
Validation	—