



## Instructionally Related Activities Funds Request Spring 2016

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### IRA Funds Request for Mathematical Models for Santa Rosa Island

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#### Instructionally Related Activities Funds Request Summary

<b>Project Sponsor</b>	Jorge Garcia
<b>Activity Title</b>	Mathematical Models for Santa Rosa Island
<b>Activity/Event Date</b>	Spring and Fall semesters 2016
<b>Date Funding Needed By</b>	January 2016
<b>Previously Funded?</b>	No
<b>Semester/Year</b>	—
<b>Proposal #</b>	—
<b>Report submitted for previously Funded Activity?</b>	—
<b>Report submitted for previously Funded Activity</b>	—
<b>Additional Report #1</b>	—
<b>Additional Report #2</b>	—
<b>Additional Report #3</b>	—
<b>Additional Proposers</b>	: Ivona Grzegorzcyk, Kathryn Becker
<b>Academic Program(s) / Center Name(s)</b>	Mathematics
<b>Estimated total Course Fee revenue</b>	0
<b>Amount Requested from IRA</b>	5000
<b>Estimated Number of Students Participating</b>	10-15
<b>Conditions and Considerations</b>	Field Trip
<b>Brief Activity Description</b>	This proposal is to develop an interdisciplinary research program for the Mathematics Department that involves undergraduate students enrolled in MATH 497 courses. It will include design of statistical experiments related to the California natural environment, performing the experiments on Santa Rosa Island, and installing data collecting monitors of fauna, flora, weather, coastline, etc. Students' work will be

	supervised by faculty and graduate instructors and will involve collaborations with researchers from other institutions. They will gain hands-on experience from all stages of the projects—from experimental design, through data collection and analysis, to research paper writing and presentations. These courses will require several trips to the island.
<b>Learning Outcomes and Relation to IRA to Course Offerings</b>	<p>MATH 497</p> <p>Through this course, students will be able to</p> <ul style="list-style-type: none"> <li>• Do research in statistical and mathematical applications to environmental sciences</li> <li>• Model various natural phenomena</li> <li>• Collect and analyze data</li> <li>• Present their research in oral and written form</li> </ul> <p>MATH 499</p> <p>Through this course, students will be able to</p> <ul style="list-style-type: none"> <li>• Reflect on research results and conclusions</li> <li>• Apply their knowledge of statistical and mathematical models to current issues in environmental sciences.</li> <li>• Present their research in oral form to a wide audience.</li> </ul>
<b>Description of Assessment Process</b>	Assessment will be done through research projects on data collection and statistical analysis, hypothesis testing, validation of tests, and conclusion. The final report and public presentation of the results in the Math 499 seminar will be the basis for the final grade. Successful projects will include interesting results. The best papers and posters will be presented at mathematics or environmental science conferences.
<b>Activity Budget</b>	<a href="#">IslandsDataProjectBudget.xlsx</a>
<b>CIA Budget</b>	—
<b>CIA Proposal</b>	—
<b>Course Syllabus</b>	—
<b>CIA Certification</b>	—
<b>Other Sources of Funding</b>	None at this time. We are collaborating with Cause Hanna (Director of the CI Research Station) on starting up the experiments. There could be some small additional funding coming from various collaborations.
<b>Target Audience/Student Marketing</b>	All math and science students are invited to enroll in MATH 497. We will limit the enrollment to 10 students to make sure that there is enough supervision for the projects. All students in upper-division mathematics and sciences courses will be informed via email and through their current math instructors about this opportunity.
<b>Bring Benefit to Campus</b>	Students will prepare presentations for the MATH 499 student seminar. These presentations will be open to the public and all campus community members will be invited. Additionally, the best results will be presented at scientific conferences or even published.
<b>Sustainability</b>	Depending on the results of the statistical analysis of collected data related to the California natural environment, especially on Santa Rosa Island, recommendations will be made about sustainability and other nature-affecting actions that humans may take to preserve it. Some recommendations about further installation of monitors of fauna, flora, weather, coastline, etc. will be made as well to continue the research projects.
<b>Program Chair/Director</b>	ivona.grzegorzcyk
<b>Dean</b>	karen.carey
<b>Acknowledgement</b>	I acknowledge that I have reviewed and accepted the Conditions and Considerations herein. Please check off boxes as appropriate.

#### Program Chair/Director Approval

<b>Approval</b>	I approve the IRA Funds Request described on this page
<b>Name</b>	Ivona Grzegorzcyk
<b>Date/Time</b>	9/30/2015 9:48:34 PM
<b>Validation</b>	myCI-signin-XQ-2820

#### Dean Approval

<b>Approval</b>	I approve the IRA Funds Request described on this page
<b>Name</b>	Karen Carey

<b>Date/Time</b>	10/1/2015 8:19:14 AM
<b>Validation</b>	myCI-signin-TT-3745

#### IRA Committee Decision

<b>Decision</b>	—
<b>Comments</b>	—

#### Actions

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