

# The LSAMP Cyber-Enabled Discovery and Innovation Center for International Undergraduate Research Experiences

The LSAMP Cyber-Enabled Discovery and Innovation Center for International Undergraduate Research Experiences is being developed within the Cyber-Enabled Discovery and Innovation initiative to aid in the development of a diverse workforce with global computational competencies critical to continued US competitiveness. Specifically this initiative will establish an international virtual organization to support research and inquiry based STEM education activities for undergraduate students. The establishment of this center will aid in the discovery of the appropriate cyber-enabled design paradigm needed to facilitate global research training for undergraduates. Resulting efforts and activities of the center will assist in evaluating the effectiveness of cyber-enabled virtual collaborations utilizing undergraduate students and researchers.

The LSAMP Cyber-Enabled Discovery and Innovation Center for International Undergraduate Research Experiences will consist of constructing a cyber-enabled virtual organization with collaborations involving diverse undergraduate students from the US and abroad. Initial primary countries to be involved include: US, Argentina, Brazil, France, and Ghana. A Cyber-Enabled Virtual Collaboration Network will be constructed using state-of-the-art hardware and software to facilitate global research activities and interactions among the undergraduate students.

Catalyzing international research for the nationwide LSAMP community and enhancing the broader impacts of doing science abroad remains a core aspect of this Cyber-Enabled Discovery and Innovation Initiative. Forty (40) students/year or less are proposed spanning a five period.

**Countries involved:** *Primary*, US, Argentina, Brazil, France, Ghana; *Secondary all countries with active NSF REU Sites*: including China, Czech Republic, Costa Rica, Switzerland, Austria, Thailand, Chile, England, Germany, will not be initial sites of the Virtual Collaborative Community.

**Organizational strategy-** Students will participate in 12-weeks plus 2 weekends in US pre/post program; and year-long outreach and broader impacts. A Director, co-Director and small administrative staff, Executive Committee with a majority of LSAMP representatives.

## Two Primary Thrusts

1) *The LSAMP Cyber-Enabled Discovery and Innovation Center Site* will house 20 (younger, typically sophomore) participants per year **with** French and South American undergraduates and faculty. 12 week research projects will be conducted with mentors at the University of Florida and other selected campuses, such as Morehouse, and Spelman on projects that have an international component. The goal is to prepare and motivate

LSAMP students for full and extended international immersion, including interacting with international faculty mentors. Based on interest and satisfactory progress, participants will be guaranteed a research opportunity abroad the following summer.

2) *The LSAMP Cyber-Enabled Discovery and Innovation Center International REU Sites* will place 20 experienced LSAMP students abroad each year in 12 week research projects. Ten students will be embedded in the primary countries (managed from Florida) and 10/yr will be placed according to their interests and research strengths in ~18 other iREU sites (variable periods abroad) spanning all directorates of NSF. The center will pay all costs of the student and each student will be assigned a co-mentor from their home LSAMP. LSAMP programs will co-fund extension to summer-plus-fall for selected participants (~5 per year).

*Common Activities:* Participants will join the cohort going abroad for a spring (weekend plus Monday) pre-departure meeting at embassies and NSF in DC. A post-program poster session at the Florida Museum of Natural History will reconvene all participants and others to total 100 posters in an event involving school groups, the general public, and LSAMP sites nationwide via Cyber-enabled Virtual Collaboration Network.

**Mentors** will be faculty for each country with proven track records with undergraduates, each location will have an in-country coordinator for that site, the center will coordinate visa and registration logistics.

**Projected Cost:**

1. Cyber-Enabled Virtual Collaboration Network construction utilizing software and hardware components for 5 entities @ 80K per entity. **Sub-Totals \$400K**
2. \$10-11K per student participant or \$400-450K and 25% overhead to include assessment, summer salary, travel, and secretarial cost. **Sub- Total \$500-550K/year.**