Distributed Research Experiences for Undergraduate (REU) Sites

- Distributed REUs seek to attract, nurture, and retain students in the Science, Technology, Engineering, and Mathematics (STEM) career pipeline. This is accomplished by:
  - monitoring focused on enhancing student learning,
  - opportunities for students to directly contribute to research,
  - experience with current equipment, procedures, and approaches, and
  - creation of a research product (e.g. manuscript, poster, journal article, etc).

- Some or all participants are geographically separated (Figure 1). The exact arrangement of participants varies depending on the resources and goals of the specific REU site.

- Leveraging Information and Communications Technology (ICT) and specialized programming to develop “cohorts” or peer networks for short-term collaboration and support, as well as longer-term assistance navigating the STEM pipeline.

Types of connections

- Social
  - Relate well with one another
  - Stay in contact with each other over time
- Academic
  - Collaborate on learning and academic problems that most interest personal and professional objectives

- With proper support, students connect with both the local peers and virtual peers socially and academically (Figure 4).

- Distributed REU sites collocated interns at virtually every major university, participating through the next generation of consortium members.

- The Incorporated Research Institutions for Seismology (IRIS) features 14 on-going Virtual REUs. These REUs are distributed REU sites that span across institutional boundaries.

- Example Sites
  - IRIS's Distributed REU Site
  - The Incorporated Research Institutions for Seismology (IRIS) is a consortium of over 110 research universities and organizations dedicated to monitoring Earth and its tectonic processes. This REU focuses on seismology and dedicates to improving infrastructure design and development. The IRIS Distributed REU site has a sustainable and long-term impact on the seismological community.

- Benefits
  - A distributed arrangement provides
    - Flexibility to place interns at a variety of institutions dedicated to monitoring Earth and its tectonic processes.
    - Interns are familiar with its functionality.
    - Interns are collocated with their mentors. Several of these pairs are collocated at each site creating a local cohort. Small local cohorts interact with the full cohort.

- Challenges
  - The overarching challenge is to enable effective and productive communication among interns. A number of free or low-cost technological solutions are readily available. Implementing appropriate strategies may be difficult due to the variability of internet access and the need for a low-cost solution to fit the program's needs.
  - Keep in mind the benefits of using ICT for professional development.
  - The virtual world is a beta phase. Students expected production level software and were frustrated with bugs.

- Connecting Distributed Interns

- Virtual ReU Sites

- Create clusters of posters for mini poster sessions

- Opportunities for voice and written feedback

- Friend requests to alumni – Maintain contact between the program news, opportunities, meet-ups at conferences).

- Facebook

  - Functionality Used
  - Page – Advertise the program and connect with alumni
  - Groups – A venue for social, private conversations, photo sharing, and checking-in; similar to what might be overheard in the student lounge of a department

- Course Management System

  - Functionality Used
  - Announcements – Send news, requests, and updates to participants.
  - Surveys – Implement surveys, and maintain a calendar with important events.

- Technology

  - Facebook & Course management system

  - Virtual world – QuakeQuest

  - End-of-summer symposium or scientific conference

- Key Features

  - Fostering common purposes, though challenging when students are working on different projects, is important.

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