UNLV Collaborative Research and Education

Monica AF Lounsbery, Associate Vice Provost
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Overview

• CoRE Background and Aspiration
• CoRE History and Status
• CoRE Linkages with STEM
• UNLV Research Initiatives
• CoRE Fellow Introduction
The Increasing Dominance of Teams in Production of Knowledge

Stefan Wuchty,1* Benjamin F. Jones,2* Brian Uzzi1,2*†

We have used 19.9 million papers over 5 decades and 2.1 million patents to demonstrate that teams increasingly dominate solo authors in the production of knowledge. Research is increasingly done in teams across nearly all fields. Teams typically produce more frequently cited research than individuals do, and this advantage has been increasing over time. Teams now also produce the exceptionally high-impact research, even where that distinction was once the domain of solo authors. These results are detailed for sciences and engineering, social sciences, arts and humanities, and patents, suggesting that the process of knowledge creation has fundamentally changed.

18 MAY 2007 VOL 316 SCIENCE www.sciencemag.org
Why CoRE?

Cross-disciplinary teams produce most impactful research; highest citation

Wuchty, Jones, & Uzzi, 2007
Implications for Education

A US Report, “Bio2010: Transforming Undergraduate Education for Future Research Biologists” that was requested by the NIH and the Howard Hughes Medical Institute strongly recommended that undergraduate biology education should incorporate mathematics, physics, chemistry, computer science, and engineering until "interdisciplinary thinking and work become second nature."
Collaborative Research and Education
Clinical Translational Research
Team Science

“Moving the Needle Through TEAM Science”

http://www.youtube.com/watch?v=4FKy6pKeaAY
UNLV CoRE

Solutions to complex social and scientific problems require teams of specialists from diverse backgrounds working across the boundaries of disciplinary silos…

CoRE aims facilitate this kind of synergy
Individual CoRE Value

- **Connection to others with like interests**
  - Increase capacity to work on macro level issues
  - Lead to a fun and more fulfilling/productive work environment

- **Accelerate impactful research, external funding & scholarly work**
  - Access to broad network of scholars and community stakeholders
  - Access to expert consultation
  - Support through facilitation
UNLV CoRE

A grassroots approach to developing a university-wide avenue for collaborative research and education
CoRE Steering Committee

- Jaci Batista – Engineering
- Alan Simmons – Anthropology
- Ed Nagelhout – English
- William Brown – Brookings Mountain West
- Stan Smith – Research Office
- Rainier Spencer – President’s Office
- Monica Lounsbery – Provost’s Office
Series of Faculty Consultations

Spring 13


  • Research Interests
    - Research
    - External grants
    - Curriculum development

  • Areas of Common Interest
    • Renewable resources, health, social and urban issues were the 3 areas with the highest interest

    • Steering committee identified gaming; IT/cyber security, MOOCS/E-learning, as other areas
Series of Faculty Consultations (2)

• Fall 13 CoRE Area convening meetings
  – Provide opportunities for faculty to meet with one another and to engage in scholar discourse
  – Further identify areas of common interest
  – Consult on form and function of CoRE
General Sentiment from CoRE Convening Meetings

• **7 broad CoRE areas**

• General notion of CoRE
  – Help facilitate, form, and support collaborative teams and multi-level partnerships
  – Provide space and impetus for convening
  – Provide technical support for grant identification and proposal development
  – Nurture and support team efforts
What’s Next??
What is CoRE?

➢ A catalyst for interdisciplinary research and education that transcends our traditional unit boundaries

➢ Goal is to increase grant funding in new broad-based agency initiatives

➢ Involves faculty from multiple academic units and disciplines
NSF-STEM Keystone Recommendation

“Leverage NSF’s *Broader Impact Criterion* to encourage large-scale, sustained partnerships among higher education institutions, industry, content developers, and research laboratories/centers with high schools to deploy the Nation’s science assets in ways that engage tomorrow’s STEM innovation”
NSF-STEM Keystone Recommendation

How University-based research proposals can meet this recommendation

- Engage science teachers and K-12 students in research projects
- Citizen science
- Real-time posting of data in open-access repositories
- Curricular (or content delivery) development
Recent NSF Interdisciplinary Programs

- Science, Engineering and Education for Sustainability (SEES)
- Decision, Risk and Management Sciences
- Science and Innovation Policy
- Science, Technology and Society
- Smart and Connected Health
- Cyber-Learning: Transforming Education
Recent NIH Interdisciplinary Programs

- Systems Science and Health in the Behavioral and Social Sciences
- Understanding and Reducing Health Disparities
- Predictive Multi-scale Models for Biomedical, Environmental and Clinical Research
- Climate Change and Health
- Biomedical Informatics
Interdisciplinary Research at UNLV: Some Examples

- EPSCoR Climate Change Project
  (Science, Urban Affairs, Engineering, Education)

- EPSCoR Water-Energy Nexus Project
  (Engineering, Science, Economics, Education)

- Solar Decathlon Team
  (Architecture, Engineering, Business, Hotel)
Knowledge Fund:
UNLV/NSHE Proposals

- Quantitative Health Sciences
- Center for Gaming Innovation
- Unmanned Aerial Systems (UAS’s)
IDeA-CTR: Clinical and Translational Research Infrastructure

- UNLV Lead – serves 7 Western Region IDeA states
- Mission – accelerate the translation of scientific discovery to improve health in the Western Region
- Key Goal – improve health delivery, rural health, health disparity issues, etc. in a region that lacks adequate infrastructure and expertise in health care
IDeA-CTR: Mountain West Collaboration Research Themes

- Mental Health
- Cancer Research
- Cardiovascular Disease
CoRE Fellows (Research Development Officers)

- Support researchers’ efforts to nurture critical research partnerships;
- Secure collaborative extramural research funding
- Catalyze new collaborative opportunities by conducting mini symposia and research meetings
- Identify experts and introduce new collaborators
- Offer grantsmanship and proposal development support for collaborative grant and contract opportunities
- Provide guidance and training for the development and maintenance of research teams
CoRE Fellows

- Gaming – Bo Bernhard
- Emergent and Sustained Learning Technologies – Ed Nagelhout
- Humanities – Simon Gottschalk
- Urban and Social Issues – Jennifer Keene
- Health – Janet Dufek & Barbara St. Pierre Schneider
- IT/Cyber Security – Kazeem Taghva
- Renewable Resources – Kwang Kim
CoRE

- Will continue to be a grassroots program
- New CoRE areas will likely emerge
- The CoRE door is always open –
- Get involved!