Implementing Convergence Science

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Workshop on Building Convergence Science into your Next Grant Proposal & Collaboration
UCI Team Scholarship Acceleration Lab
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Global Challenges of the 21st Century

- Environmental
- Public Health
- Sociocultural
- Technological
Convergence
A National and Global Priority
Two key questions for today:

• What is convergence science?

• How can we best achieve convergence in our research?
Hallmarks of Convergence Science

(National Science Foundation)

• Involves deep integration across disciplines and perspectives situated beyond academia

• Driven by a specific and compelling problem

• Often leads to co-production of knowledge by researchers and diverse stakeholder groups

(https://www.nsf.gov/od/oia/convergence/index.jsp)
Changing Conceptions of Convergence

- Broader cross-disciplinary scope, spanning STEM and non-STEM fields and sectors beyond academia
- Greater emphasis on integrating the concerns and tools of SciTS and convergence
- Explicit consideration of strategies for creating a culture of convergence in research organizations
- Closer look at the interplay between divergent and convergent thinking in research teams
- Emerging questions about the impact of societal forces on convergence (proximity constraints imposed by Covid-19; Internet chaos; nationalistic, anti-science values & policies)
Key Facets of the Convergence Ecosystem

- Societal events; national research policies; funding agency & foundation support for team science initiatives; pandemics, public priorities

- Institutional incentives for cross-disciplinary partnerships (e.g., seed grants, credit sharing, promotion and tenure criteria)

- Team-level supports (team composition, collaboration planning; technological and environmental resources)

- Cultivating collaborative and integrative competencies- individual and team training strategies

(Stokols, 2019; Stokols, Olson, Salazar, & Olson, 2019)
The Science of Team Science

...an interdisciplinary field concerned with understanding and managing circumstances that facilitate or hinder the effectiveness of collaborative (and often cross-disciplinary) research, training, and translational initiatives

INSciTS | Building the knowledge base for effective team science
International Network for the Science of Team Science

12th Annual International Science of Team Science Conference
June 7-9, 2021
Hosted by Virginia Tech

https://www.inscits.org/
Cultivating Core Competencies for Convergence

*The Four T’s of Research Training in the 21st Century*

- Transdisciplinary
- Team-based
- Translational
- Transcultural

*Members of the ALICE Collaboration, A Large Ion Collider Experiment*
Team-Level Supports for Convergent Science

- Measure and strengthen team’s collaborative capacity
- Measure aspects of collaboration known to lead to success
- Suggest remedies for weaknesses
Institutional Supports for Convergent Science

Identifying Faculty Contributions to Collaborative Scholarship

An increasingly prominent feature of 21st-century research is faculty members' participation in collaborative research projects. Team science, (also called "convergent science" in some contexts) is used broadly to refer to collaborative (and increasingly cross-disciplinary) scholarship and translational efforts to develop evidence-based solutions to complex societal and global problems. The forms of collaborative scholarship vary across different fields including the natural and physical sciences, biomedicine, engineering, social and behavioral sciences, and the arts and humanities.

Not all faculty members at UCI are engaged in team-based scholarship and this is certainly not a requirement for successful merit and promotion reviews. At the same time, because team-based cross-disciplinary research (sometimes involving partnerships between university faculty and community-based partners) is becoming an increasingly salient feature of contemporary research, UCI is strongly committed to creating an academic climate that facilitates and rewards faculty contributions to collaborative scholarship. Toward that goal, we encourage candidates for merit and promotion reviews to identify their specific contributions to collaborative scholarship and/or translation to community practice and public policy.

We developed a listing of some of the ways that faculty can contribute to team-based discovery and translation to practice. The suggested list of collaborative contributions is not exhaustive, and the ways that faculty contribute to team-based research may be field-specific. In any case, if you are participating in team research at UCI as well as projects in which you are collaborating with scholars from other universities and/or with community partners, please describe those contributions in your reflective research statement for merit or promotion review. Also, as you complete the UC-AP-10 summary of your major publications for the current review period, please note your collaborative contributions when summarizing those publications that resulted from team-based projects.

Prepared by UCT Team Science Acceleration Lab: Mariela Salazar-Campos, Gary Olson, Judith Olson and Dan Stokoh

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Related Sites

Academic Senate
ADVANCE Program for Equity & Diversity
Graduate Division
Office of Equal Opportunity and Diversity
Office of Research

https://ap.uci.edu/faculty/guidance/CollaborativeScholarship
Resources for Convergence Training and Practice

https://www.teamsctoolkit.cancer.gov

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https://www.teamsciencetoolkit.cancer.gov

https://www.cancer.gov/about-nci/organization/crs/research-initiatives/team-science-field-guide

https://naturalsciences.ch/co-producing-knowledge-explained/methods/td-net_toolbox

https://www.scienceofteamscience.org/scits-a-team-science-resources