

DRAFT

Proposal for University of Florida Promotion and Tenure Policy and Procedures Regarding Team Science

Introduction

Collaborative research has been the dominant mode for scientific inquiry and discovery for several decades. The percent of science and engineering publications written by two or more authors rose from 50-60% of publications in the 1960's to 80% in 2000.ⁱ In 2013, 90% of all papers were authored by at least two individuals. The National Academy of Science (NAS) defines team science as, "Scientific collaboration, e.g. research conducted by more than one individual in an interdependent fashion, including research conducted by small teams and larger groups."ⁱⁱ An effective science team achieves goals and objectives that lead to new research findings or methods or to translational applications of the research. The benefits of conducting research with teams include greater ability to approach more complex problems with contributions from individuals with specific expertise in different areas bringing new skills and insights to projects. However, challenges have emerged that may impact the willingness of individuals to participate in team science, including difficulty advancing through academic institutions. Traditionally, university policies, including at the University of Florida (UF), emphasize accomplishments of individuals and have not articulated criteria for evaluating individual contributions to team-based research. The NAS Team Science Report specifically recommends that universities should proactively develop and evaluate broad principles and more specific criteria for allocating credit for team-based work to assist promotion and tenure committees in reviewing candidates.ⁱⁱ

A Health Science Task Force was convened at the request of the UF Clinical and Translational Science Institute, to provide recommendations that would offer specific criteria for allocating credit for team-based work, inform faculty of the accomplishments that would generate such credit and assure appropriate academic advancement for faculty participants in effective team science programs.

To affirm that the University of Florida supports and values participation in team science and to establish measureable criteria for promotion, we propose the following:

- An explicit statement by the University stating the importance and value of contributions to team science should be included in the tenure and promotion guidelines. E.g.:
 - The University of Florida recognizes that teams of investigators are responsible for many new discoveries and advancements of knowledge. Therefore, documentation of an individual faculty member's significant contributions to effective teams will be considered as evidence for distinction in research.
 - Because participation in collaborative, multidisciplinary research teams is highly valued, authorship other than listed as first or last author will be recognized as significant as long as the faculty member's unique contribution can be discerned by descriptions from the faculty member, chair and collaborators.
- Mutually beneficial collaborations underpin the effectiveness of multidisciplinary teams, so that the expertise of one individual complements the expertise of others and results in innovation.

Demonstration of significant contributions to effective teams will be documented in the promotion packet by:

- Description by the faculty member of scientific contributions to each team of investigators he/she is engaged with, including design, performance, analysis, presentation and publication of research and preparation and submission of research grants. Such information should be summarized in the narrative describing contributions to the discipline and noted in a description of each listed publication and research grant.
- The Chair's letter must describe the contribution of the individual faculty member to the overall success of the research team(s).
- Up to three letters of evaluation should be solicited from collaborators (internal or external) who will describe the activities and impact of the individual faculty member on the project(s) and results produced by the research team(s). These letters would be in addition to the required letters of evaluation.
- A faculty member may, as an option, include a network analysis of the extent and impact of their collaborations with investigator and investigative teams.
- Each College should delineate which activities it considers major, moderate and minor contributions to the impact of an investigative team.ⁱⁱⁱ As examples only:
 - For grant preparation:
 - Major contribution = substantive input into the overall research design with inclusion of pilot or preliminary findings from the faculty member's work
 - Major contribution = responsibility for writing the overall grant
 - Moderate contribution = writing one or more sections
 - Minor contribution = overall critical review of the proposal without substantive changes
 - For research activities:
 - Major contribution = regular participation in one or more of the protocol activities and regular participation in investigator meetings
 - Moderate contribution = participation in data collection, participant recruitment, data management, or quality control activities
 - Minor contribution = serving as an advisor or consultant for protocol activities
 - For analytic activities:
 - Major contribution = planning, directing and performing the analyses; developing the results tables and descriptions; partnering in the interpretation of findings; substantive input into the overall organization and writing of a manuscript
 - Moderate contribution = preparing and writing the analytic section
 - Minor contribution = performing selected portions of the analyses or the written manuscript
- Deans and Promotion and Tenure Committees should be provided with educational modules on team science and assistance with the implementation of the Policy and Procedures Regarding Team Science.

UF Health Science Center Task Force for Team Science Promotion.

Henry Baker, PhD, Professor and Chair, Molecular Genetics and Microbiology, College of Medicine;

Reginald Frye, PharmD, PhD, Professor and Chair, Pharmacotherapy and Translational Research, College of

Pharmacy;

Marcio Guelmann, DDS, Professor and Chair, Department of Pediatric Dentistry, College of Dentistry; Gail Keenan, PhD, RN, Annabel Davis Jenks Endowed Professor for Teaching and Research in Clinical Nursing Excellence, College of Nursing;

Marian Limacher, MD, Senior Associate Dean for Faculty Affairs and Professional Development and Professor of Medicine, Division of Cardiovascular Medicine, College of Medicine, Task Force Chair;

Chris McCarty, PhD, Professor of Anthropology, Director, Bureau of Economic and Business Research, College of Liberal Arts and Sciences;

Rowan Milner, MVSc, PhD, Hill's Associate Professor of Oncology and Chair, Department of Small Animal Clinical Sciences, College of Veterinary Medicine;

Mattia Prosperi, MEng, PhD, Associate Professor, Department of Epidemiology, College of Medicine and College of Public Health and Health Professions;

Glenn Smith, PhD, Professor and Chair, Clinical Health Psychology, College of Public Health and Health Professions.

References Cited

ⁱ Wuchty, S., Jones, B.F., and Uzzi, B. (2007). The increasing dominance of teams in production of knowledge. *Science*, 316:1036–1038. Available: <http://www.kellogg.northwestern.edu/faculty/jones-ben/htm/teams.printversion.pdf> [October 2014].

ⁱⁱ Nancy J. Cooke and Margaret L. Hilton, Editors; Committee on the Science of Team Science; Board on Behavioral, Cognitive, and Sensory Sciences; Division of Behavioral and Social Sciences and Education; National Research Council. The National Academies Press, 2015. Pp 2-11.

ⁱⁱⁱ Mazumdar M, Messinger S, Finkelstein DM, Goldberg JD, Lindsell CJ, Morton SC, Pollock BH, Rahbar MH, Welty LJ, and Parker RA for the biostatistics, Epidemiology and Research Design (BERD) Key Function Committee of the Clinical and Translational Science Awards (CTSA) Consortium. *Academic Medicine* 2015; 90: 1302-1308.

Additional resources:

Pollack, ME, Snir M. Promotion and Tenure of Interdisciplinary Faculty. Computing Research Association Best Practices Memo. July 2008.

<http://www.engr.washington.edu/onramp/2009Workshop/MarthaPollackbestpractices.promotions.tenure.pdf>

National Cancer Institute. *Team Science Toolkit*. Available at <https://www.teamsciencetoolkit.cancer.gov/public/home.aspx?js=1>

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