



College of Arts & Sciences Report on Areas of Research, Scholarly and Creative Activities, and Discovery (RSCAD) Strength

Purpose of the report: We need to be able to answer the questions, “What are a College’s areas of RSCAD strengths and why? “

Due Date: Friday, May 23, 2014

Guidance for using reporting template:

- A. *Area of Strength:* This section is used to identify a College area of RSCAD strength. It refers to significant areas of research, scholarship, creative activities or discovery that the College considers a strategic strength. It does not refer to a specific department or individual faculty member.
- B. *Scope:* This section is designed to allow the College to provide a description explaining the general scope of the RSCAD area within the College context. This description is meant to communicate to both internal and external audiences the nature of the RSCAD area.
- C. *Current or Emerging Strength:* This section allows a college to identify if a particular area is a current and/or emerging strength. Enter a “C” for Current, “E” for Emerging, or “B” for Both.
- D. *Criteria of Strength:* This section allows the College to quickly explain why a RSCAD area is considered a strength. Criteria of Strength refer to characteristics or defining features that can be used to distinguish RSCAD areas of strengths. The attached criteria list can be used as a basis for identifying and reporting college areas of RSCAD strength in the reporting template.

Please enter the number(s) that correspond with the identified criteria from the attached list. Colleges may add additional criteria to the list, as they deem appropriate. If a college adds criteria to the list, please submit the additions as part of the report. Please note that the College maintains the flexibility to determine which, if any, of these criteria they want to use.

- E. *Narrative:* This section is designed to allow a College to add a narrative explaining why a particular area is a “strength”. The explanation could augment the criteria of strengths and/or be an addition to the criteria. The narrative should be targeted to both internal and external audiences. If no criteria are reported in section D, the College must provide a narrative explanation.



A. Area of Strength	B. Scope	C. Current (C), Emerging (E), or Both (B)	D. Criteria of Strength (1, 3, 5, etc.)	E. Narrative
Genomics/Lipidomics/Proteomics	Insects, plants, model organisms, cancer, modeling	B	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 14, 16, 18, 19	Recognized centers such as Johnson Center for Basic Cancer Research, Arthropod and Ecological Genomics, Kansas Lipidomics Research Center; KSU Bioinformatics Center; integration with education
Insect biochemistry/molecular biology/vector biology	Model insects, disease vectors, agricultural pests	B	1, 2, 3, 4, 7, 8, 9, 11	
Grassland ecology	Below-ground processes; fire and grazer interactions; climate change modeling; population, community, ecosystem, and landscape level investigations	C	1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 16, 19	Konza Prairie Biological Station NSF Long Term Ecological Research site, National Ecological Observatory Network site
Evolutionary biology	Model and non-model species; interdisciplinary integration of genetics/genomics in evolutionary and ecological contexts	B	1, 2, 4, 7, 8, 9, 11	



Infectious disease/innate immunity	Basic mechanisms of pathogenesis, host-pathogen interactions	B	1, 2, 4, 7, 8, 9, 11	
Bio-organic synthesis, theory and spectroscopy	New drugs, new drug delivery protocols; fundamental mechanisms	B	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19	
Nanomaterial and supramolecular synthesis	Theory, characterization, and applications	B	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19	
Atomic, molecular, optical physics	Instrument development, lasers	B	1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 18	J. R. Macdonald Laboratory, Kansas Light Source
Condensed, soft, and biological matter physics	Assembly of nanoparticles; growth of nanowires; interactions with cells	B	1, 2, 4, 6, 7, 8, 9, 10, 11, 12, 13, 16, 18	
High energy physics/cosmology	Particle physics and astrophysics	B	1, 2, 4, 6, 7, 8, 9, 10, 11, 12, 13, 16, 18	
Science/mathematics education research	Biology, chemistry, mathematics (I-Center, Q-Center), physics active learning environments	B	1, 2, 4, 10, 11, 14, 15, 19	Integration of research and education; improved teaching and pedagogical approaches



Energy sector research	Petrology, oil and gas, carbon sequestration	E	1, 2, 6, 13, 14, 17, 18	Potential to expand into more interdisciplinary areas such as biofuels, human impacts, climate change
Water quality and quantity	Geochemical and geomicrobiological impacts; social change resulting from changes in water uses	B	1, 2, 4, 6, 7, 8, 11, 13	Critical Zone Observatory
GIS, remote sensing, and geospatial modeling	Global food security, water issues, infectious disease modeling, monitoring and modeling natural landscapes	B	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 18, 19	
Novel statistical modeling	Bayesian techniques, large scale data analysis, correlated data	B	1,2,6,7,8,11,12,13,15,18,19	Novel research areas and support for other projects
Mirror symmetry and tropical geometry	Relationship to string theory	B	4, 5, 7, 8, 9, 10, 11, 14,18	Research center with two NSF Focused Research Group awards
Big Data analysis and applied mathematics	Computational strategies, harmonic analysis, complex analysis, graph theory	E	4, 5, 7, 8, 9, 10, 11, 14,18	



Behavioral neuroscience	Animal models; animal learning; addiction	E	2, 4, 7, 8, 9, 11, 19	
Cognitive/ human factors/social psychology	Judgment and decision making; social and statistical reasoning; psycholinguistics; visual and media cognition; human-computer interaction; social interactions	B	2, 4, 7, 8, 9, 10, 11, 19	
I/O psychology	Psychology of work, organizations, work-non-work interface; adaption to environments	B	1, 2, 4, 6, 7, 11	
Security studies	Interdisciplinary field incorporating history, political science, economics, military history	B	1, 2, 7, 8, 9, 11, 14, 15, 16, 18	Development of new generation of broadly trained analysts, policy makers, researchers in domestic and international security
Rural history/ sociology	Interdisciplinary research involving communities, climate change, political changes, economic development, impacts of water	B	1, 2, 4, 8, 11, 13, 16	Chapman Center, interactions with College of Agriculture
Public administration	State and local politics; nationally ranked MPA	B	1, 2, 3, 7, 8, 9, 10, 11, 13, 19	
Strategic and crisis communications	Research on messaging and communications regarding biosafety, food safety, and preparedness	B	1, 2, 3, 7, 11, 13, 18, 19	



Communications and community development	Strengthen local media that play key role in survival of rural America; foster citizen engagement in and understanding of democracy	B	1, 2, 3, 5, 7, 11, 18, 19	Institute for Civic Discourse and Democracy; Huck Boyd National Center for Community Media;
Economics	Macro, public, labor, international	B	1, 2, 4, 7, 8, 9, 10, 11, 18	
Linguistics and second language acquisition	Quantification of language use and effectiveness of language instruction	B	2, 3, 11, 16, 19	
Cultural studies	Ethnic literature, feminist literature, queer studies	B	7, 11, 13, 16	
Digital humanities and arts	William Blake Archive; 3D fabrication; fine art video; web art and digital animated projections	B	9, 13, 14, 15, 16, 19	
Children's literature	Current and period American and British children's and young adult literature and science fiction	B	7, 8, 9, 10, 11, 15, 16	
Philosophy	Formal philosophy, logic, ethics, philosophy of science/math/politics	B	10, 11, 16, 18, 19	
Contemporary crafts	Ceramics and metalsmithing; production and theory	B	7, 9, 16	
Photography and printmaking	Innovation in techniques	B	9, 11, 16	
Community/ social engagement art	Interdisciplinary references and components	B	9, 18, 19	



School of Music, Theatre, and Dance	Disciplinary strengths and interdisciplinary collaborations involving student productions and faculty research	B	9, 11, 12, 14, 16, 18, 19	All-Steinway School; Kirmser Hall; New Purple Masque Theatre; Drama Therapy program
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