

Scholarly Connections: Leveraging Citation Data to Highlight Faculty Research Trends

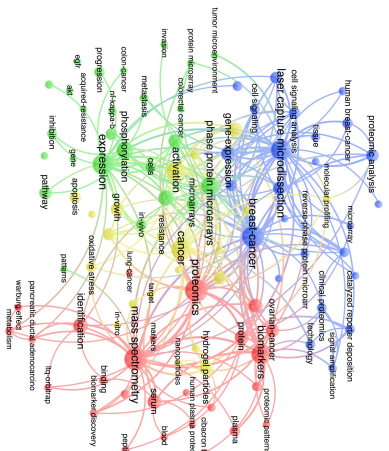
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University Libraries | George Mason University

Research Question

Can bibliometric methods and visualizations provide insight into researchers' relationships and processes, and thus improve libraries' outreach, collection development, instruction, and services?

Background

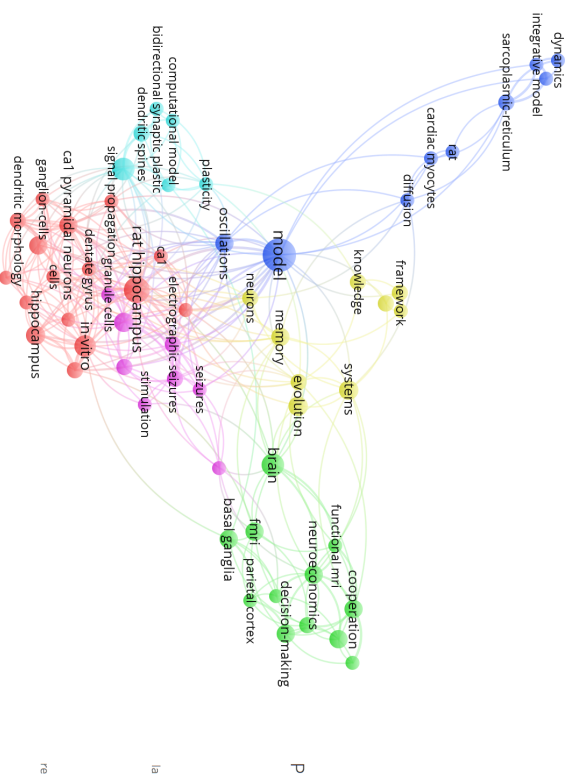
Bibliometrics can be used by information professionals not only for collection development, but also understanding researcher relationships. After first focusing on the Center for Applied Proteomics and Molecular Medicine (CAPMM), we sought to complete a bibliometric analysis of the Krasnow Institute.



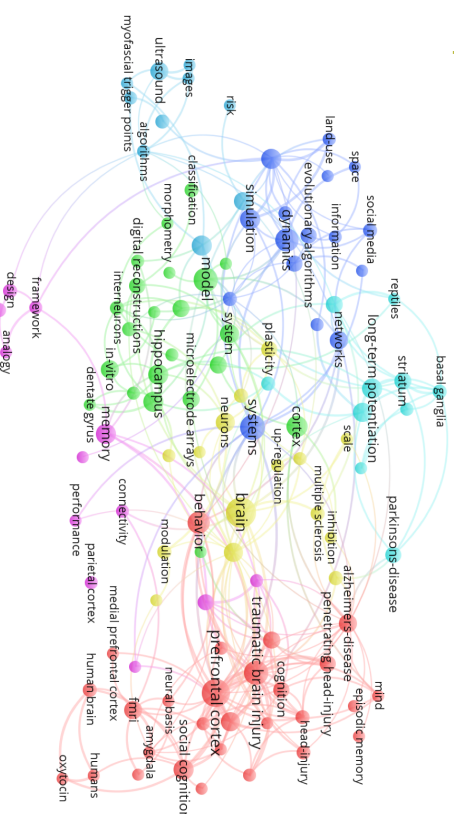
CAPMM
Keyword
Co-occurrence
2006-2017

Methodology

We compiled citations from Web of Science. We then used VOSViewer and other data analytic tools to develop visualizations of co-occurrence and co-author networks for the Krasnow Institute. Due to the complexity of the network, this data can be better understood over time intervals.



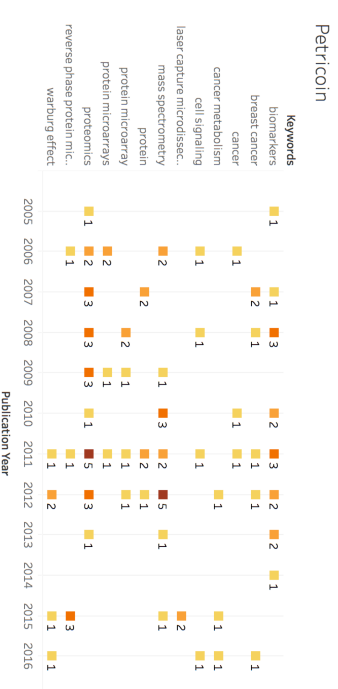
Krasnow | Keyword Co-occurrence | 2006-2010



Krasnow | Keyword Co-occurrence | 2011-2017

Results and Discussion

Preliminary analysis suggests that understanding researcher networks can help libraries meet local users' needs. Co-occurrence networks illustrate the center's overall research areas, and thus can facilitate collection development *and* building connections across campus.



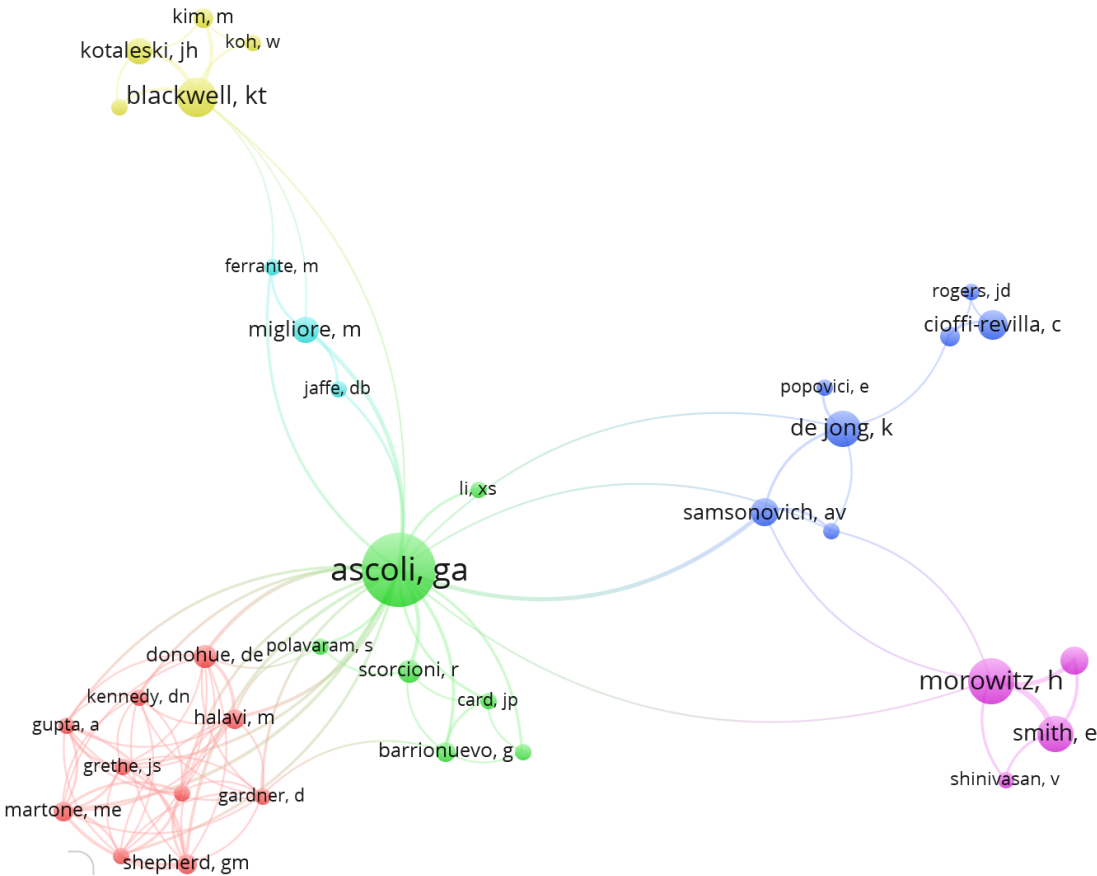
CAPMM | Heat map example | Petricoin, E

Furthermore, these findings demonstrate that bibliometrics and visualizations can be valuable means of analyzing and evaluating researcher needs. This can expand opportunities for libraries to collaborate with Mason researchers. Libraries must remain responsive to the diverse needs of the university's researchers throughout the entire research lifecycle, from planning to productivity to impact.

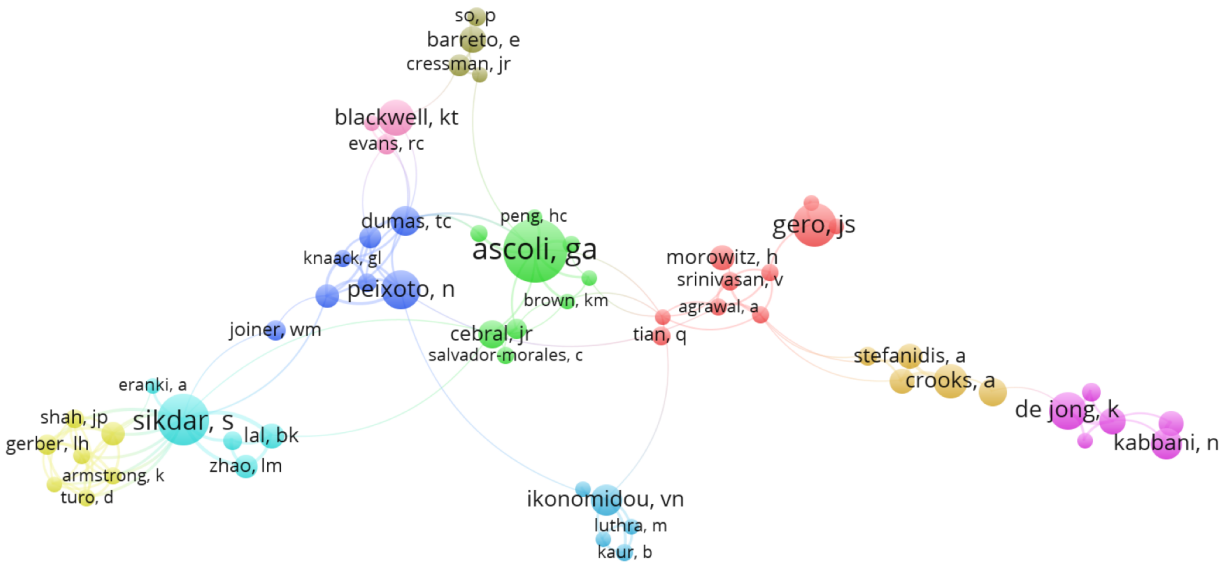
Consequently, bibliometrics and visualizations can be key components for assessing the library's support needs for these multidisciplinary institutes and research centers.

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Krasnow Co-Author Co-Occurrence Networks



2006--2010



2011--2017

Abstract

During the 2016-2017 academic year, George Mason University Libraries' Science and Technology Team began a project with an end goal of capturing trends in faculty research by creating visual representations of faculty citation data within the many institutes at the university.

The project continued in 2017-2018 by expanding to include the work of faculty at the Krasnow Institute, which is the focus of this presentation. Vamsi Kunaparaju, a graduate student in the Data Analytics Program in the Volgeneau School of Engineering, has worked with the library staff to provide a chronological view of faculty work and how research topics have evolved over time among these researchers. In addition, this presentation will compare the challenges faced during the process of analyzing citation data from the Krasnow Institute as opposed to the data from the first institute evaluated which was the Center for Applied Proteomics and Molecular Medicine.

Finally, as the library partners with graduate assistants in the future who have data analysis skills, the objective is to provide both faculty and library staff with a firmer grasp on faculty interactions through the lens of publishing habits. This initiative can serve as a strategy to strengthen existing interdisciplinary partnerships as well as an impetus for new partnerships that faculty were unaware of previously.

References

Association of College and Research Libraries. (2017) *Academic Library Impact: Improving Practice and Essential Areas to Research*. Prepared by Lynn Silipigni Connaway, William Harvey, Vanessa Kitzie, and Stephanie Mikitish of OCLC Research. Chicago: Association of College and Research Libraries.

Gibson, C., & Dixon, C. (2011, March). New metrics for academic library engagement. In A Declaration of Interdependence-ACRL Conference March (pp. 340-351).

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