

## A Coauthorship Network as an Indicator for Scientific Collaboration: A Case Study for the School of Biology and Biotechnology, National University of Mongolia

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### Abstract

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This case study analyzes coauthorship collaboration, or lack thereof, among individual faculty members and departments in the School of Biology and Biotechnology of the National University of Mongolia. I found that publication rates and coauthorship networks in impact-factor journals between 2008 and 2012 (as of October 31, 2012) are highly variable among the eight biology departments we studied, both within and among departments. Even in the best cases, publication rates and coauthorship networks were not sufficient. We call such insufficient coauthorship collaboration among different departments as (non)network of coauthorship. The size of departments and observed coauthorship networks (both connectance and linkage density) appear to positively, although insignificantly, affect not only the total number of publications, but also the publication rate per faculty per year. We suggest that this kind of analysis can be important for administration of academic institutions, for improving the scientific outputs of academic entities by facilitating collaborative efforts and for rationalizing organizational structures and merit-based promotion systems for more productive and efficient academic operations.

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### Introduction

One of the first indicators of performance by a research institution or an individual scientist as such is the number of publications in professional scientific journals with high-ranking impact factors by these academic entities. Previously, we have analyzed the scientific outcome by Mongolian researchers in various fields of science (Boldgiv *et al.*, 2004). By analyzing publications by Mongolian scientists indexed in the Institute

for Scientific Information's (ISI) database for the period of 1979-2002, we found that the total number of publications had increased for the period studied, mainly owing to growing international collaborations. In terms of quality of publications of Mongolian scientists, indicated by the number of times cited, some fields of science showed positive trends (medicine and biology), whereas other fields declined in terms of relative