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How Does Interdisciplinary Faculty Hiring Shape the US Academic Landscape and Individual Careers?

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Interdisciplinary Hiring Shapes the US Academic Workforce

Hiring a professor is an investment that reflects a department's vision for their field's future. Interdisciplinary faculty hires—with PhDs from one field and positions in another—reveal skill fungibility and how labor markets respond to emphasis on interdisciplinary research. Existing hiring networks track only institution-level flows [1] which do not identify interdisciplinary hires. We augmented this data with department-level information to detect interdisciplinary hiring and address:

How does interdisciplinary hiring shape the academic labor force?

What are the consequences of interdisciplinary hiring for individual careers?

Data

107,128
faculty representing

12,833
departments

431
US institutions

38%
are interdisciplinary hires, crossing between

116
academic fields

Data sources:

- Academic Analytics Research Center (AARC) census of US tenure-track faculty 2011-2023
- ProQuest Dissertations & Theses
- ORCiD profiles
- OpenAlex academic database

Methods and Definitions

⇄ **Interdisciplinary hire**: PhD field ≠ hiring department field.

Fields: 116 academic disciplines (e.g. CS, Econ, English), grouped into 10 **domains** (e.g., Engineering, Humanities).

Prestige: faculty placement power measured by network-based ranking [2].

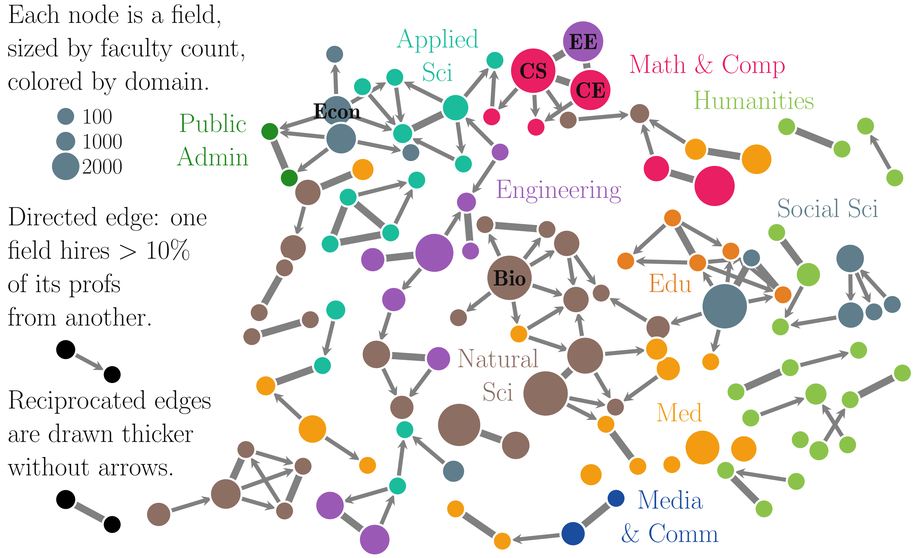
Prestige change at hire = hiring department prestige − PhD prestige.

Downward mobility from PhD → professor is typical [1, 3].

Time to hire: Years from PhD to first tenure-track position.

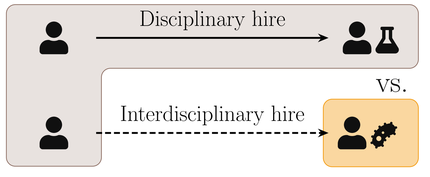
Productivity: # publications in first 5 years as faculty. Controlled for field, career age, and PhD prestige.

Field-to-Field Faculty Hiring Network



The field-to-field interdisciplinary faculty hiring network contains few large flows, but those produce both cliques and asymmetries. Nodes are fields and edges $i \to j$ represent PhDs from field i hired into field j. We show only edges representing $\geq 10\%$ of a field's total hires and draw reciprocated edges thicker and without arrows. Economics and Biology exhibited unreciprocated outflows to other fields while Computer Science sits in a mutual hiring clique.

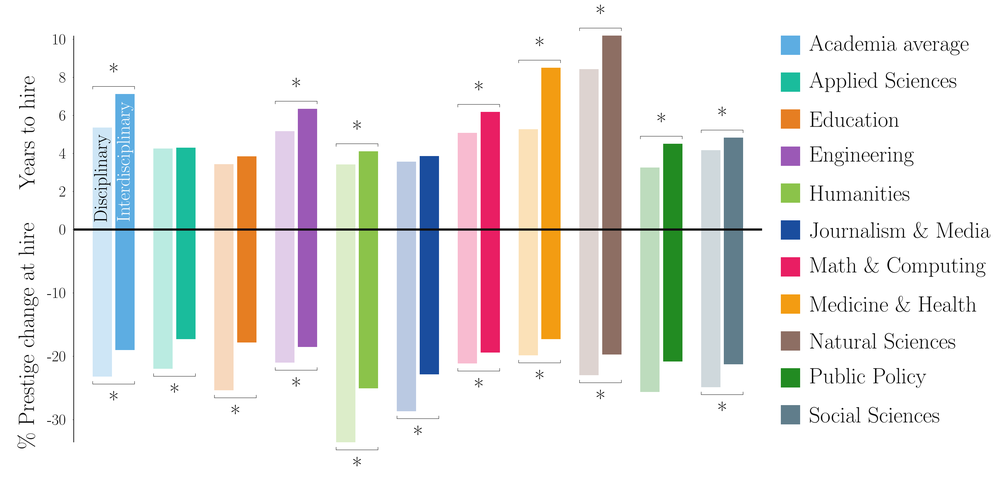
The Interdisciplinary Advantage?



1.8 years longer time to hire

4% more prestigious faculty appointments

4% more publications in first 5 years as professor



Interdisciplinary hires are hired later but attain more prestigious positions. Lighter bars: within-field hires; darker: interdisciplinary hires. Interdisciplinary hires show significant prestige advantage in **9 of 10 domains** and academia overall, and significant time-to-hire delay in **7 of 10 domains** and academia overall.

Conclusions

The system of interdisciplinary faculty hiring:
⇄ flows through *narrow channels* shaped by limited and asymmetric fungibility of training and credentials between fields.

Faculty hired between disciplines:
🕓 are *hired later*, suggesting longer postdoctoral training or job searches to make up for skill gaps [4].

🏛 attain *higher prestige*, suggesting that departments that hire from outside their fields to acquire skills, perspectives, and credentials from other disciplines. This could also reflect the influence of prestigious interdisciplinary research centers [5] on hiring.

🗎 produce *more publications* than their disciplinary peers, beyond productivity gains from higher prestige alone [6]. They may leverage broader networks of coauthors or exploit underdeveloped research niches in their adopted disciplines.

What about interdisciplinary research?
Our ongoing work suggests that most interdisciplinary hires publish research within their PhD field or hiring field, not interdisciplinary research. This supports the hypothesis that interdisciplinary hiring targets *disciplinary* training backgrounds or credentials rather than interdisciplinary research itself.

References

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