

Science Teaching & Learning Publications Project

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Project Summary

The goal of this project is to compile a list of scholarly publications written by UBC Science Faculty members from 2000-2024 related to post-secondary teaching and learning. These publications were compiled into a publicly available Zotero library and manually tagged based on related keywords. This data was visualized using Tableau (to show publications per year by department) and Flourish (to show the network between authors).

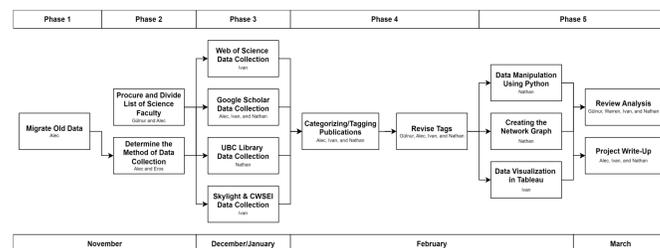
This work is a continuation of a project done by previous Science LTRs at the beginning of 2020, which only included publications until 2019.

Roadmap

The project was divided into multiple phases:

- **Phase 1:** Migrating Old Data
- **Phase 2:** Preparing Data Collection
- **Phase 3:** New Data Collection
- **Phase 4:** Categorization of Publications
- **Phase 5:** Analysis

Phase Roadmap and Timeline for the Project



Migrating Old Data

The original project used RefWorks to compile publications, which UBC has ended their subscription in late 2022. The first step of this project was to migrate the publication data collected previously to Zotero, one of UBC's currently supported citation management tools.

Preparing Data Collection

We were provided with a list of UBC Science faculty professors to use as authors for the search. We considered using APIs to assist with data collection; however, for a variety of reasons, they were not used in the final research project. We also considered using Scopus and ORCID, but since they would require a lot of work to use effectively, they weren't included in the search. In addition, they did not have the breadth of Google Scholar.

Science Publications Network Graph

This graph illustrates the collaborations between authors of different departments at UBC Faculty of Science. Larger points represent authors with more publications and stronger connections represent more collaborative publications.



New Data Collection

We decided to search the following libraries:

- Google Scholar
- Web of Science
- UBC Library
- CWSEI Website
- Science Skylight Website

Categorization of Publications

Articles were tagged by two criteria:

- **Department**
- **Content**

Some articles had auto-generated tags, but most were added manually then reviewed by the supervisors of the project.

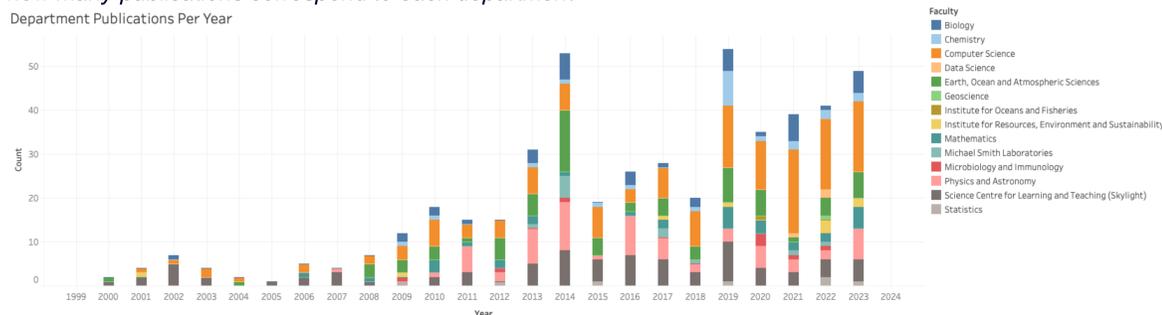
Word Cloud Of Publication Tags

This word cloud shows the tags that were added manually. Larger phrases are more popular tags.



Number of Publications per Year

This graph illustrates the number of publications per year, and how many publications correspond to each department



Analysis

We exported the Zotero library as a CSV and performed data manipulation using Python. We created Tableau dashboards to visualize the following information:

- Publications per Year
- Publications per Author
- Publications per Journal/Conference
- Types of Publication
- Count of Tags

A network graph was created using an online data visualization tool, Flourish, to show collaborations between authors of different departments.

Limitations

Due to the nature of how the data was collected, it is probable that the library does not include all relevant publications. This can be attributed to human error and database limitations. Nonetheless, we believe that this project serves as a strong foundation for documenting UBC Science publications regarding teaching and learning.

Acknowledgement

This project would not have been possible without the help of Gülnur Birol, Warren Code, and Jenny Wong from Science



Links

Zotero Library:



Tableau Public:



Flourish:



Qualtrics:

