# Robbie Weber CV

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| **Address** | Bill & Melinda Gates Center, Box 352355<br>3800 E Stevens Way NE<br>Seattle, WA 98195-2355 | **Office Phone** | +1 (206) 616-2701 |
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## Employment

**Sep 2020 -**
**Present**    Assistant Teaching Professor
*Paul G. Allen School of Computer Science & Engineering, University of Washington*

## Education

**2015-2020**    Ph.D. in Computer Science & Engineering - University of Washington

Dissertation: Pairing Things Off: Counting Stable Matchings, Finding Your Ride, and Designing Tournaments
Advisors: Shayan Oveis Gharan and Anna Karlin
M.S. awarded December 2017

**2011-2015**    BSLAS in Math & Computer Science - University of Illinois at Urbana-Champaign

## Courses Taught (ordered by frequency taught)

**CSE 311**    Foundations of Computing I (Discrete Mathematics)
*Winter 2024, Fall 2023, Winter 2023, Spring 2022, Winter 2022, Fall 2020*

- First course after admission to CSE major for most students.

- Introduced active learning to lectures (activities reused by other instructors).

- Created "concept checks", short post-lecture quizzes to keep students up-to-date with lecture content.

- Created "find the bug" problems for common student misconceptions

- Mentored TAs who designed `grin`, a system to autograde regular expression and DFA problems, allowing CSE support to retire the old system.

**CSE 417**    Algorithms and Computational Complexity (for non-CSE majors)
*Winter 2024, Fall 2022, Fall 2021, Winter 2021*

- Instituted mastery-based grading system, which allowed for student resubmissions and some choice on which problems students attempted.

- Introduced active learning activities to lectures.

- Introduced "real-world" assignments to give students a chance to consider ethical implications of using certain algorithms (e.g., who proposes in stable matching algorithms).

| **CSE 312** | Foundations of Computing II (Probability and Statistics) |
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| | *Spring 2024, Spring 2023, Spring 2021* |

- Introduced "in the real world" activities to connect topics to domains outside computer science (e.g., how people "lie with statistics")

| **CSE 421** | Introduction to Algorithms |
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| | *Winter 2023, Fall 2022* |

- Developed materials for and piloted TA-led discussion sections.

| **CSE 332** | Data Structures and Parallelism |
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| | *Fall 2021, Summer 2018* |

- Migrated exercises off of internal `grinch` autograding system onto gradescope autograding.
- Designed three new exercises focusing on theoretical aspects of the course.

| **CSE 373** | Data Structures and Algorithms (for non-CSE majors) |
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| | *Summer 2019* |

- Reordered algorithm analysis curriculum so every technique was motivated by a code snippet that could not be analyzed with prior tools.

# Student Mentoring

## M.S. Theses

**Allie Pfleger**    M.S. Thesis (2024)
*The Use of a One-on-One Intervention in Introductory Discrete Mathematics to Improve Student Outcomes*

**Omar Ibrahim** M.S. Thesis (2022)
*Spoof-It: Correcting incorrect proofs as a method to learn proof-writing*

- First job: Lecturer Department of Computer Science, University of Illinois Chicago
- co-advised with Lauren Bricker

## Other Formal M.S. Student Mentoring

**Anjali Agarwal** CSE 600: Winter 2023
*mentored while 390z instructor Fall 2022-Spring 2023 and 311 Instructor Summer 2023*

- First job: Lecturer of Computer Science, Northwestern University

### Undergraduate Advising

**Anna Kuznetsova** CSE 499: Spring 2024
*Research in CS Education: Analysis of effects of "in the real world" questions in theory courses*

**Eden Chmielewski, Peyton Rapo, Alicia Stepin** CSE 498, 499: Winter 2022-Spring 2022
*Reading and Research in CS theory: weakly stable 3D matchings*

## Internal Service

**Rising into the 300s**   *4-8 hour pre-quarter workshop for transfer students starting 311*

- Designed with Chloe Dolese Mandeville, Nicole Riley, Rob Minneker.

- Co-designed and presented introduction of 311 concepts in Summer 2020.

- Co-managed (with CSE advising staff) maintenance and mentoring of those running the program from Summer 2021 to present (runs once or twice yearly).

**390z Instructor Mentoring**   *Winter 2022 - present*

- Find, interview, and recommend instructor for discrete math "sidecar" workshop.

- Mentor graduate student instructor through teaching the course.

**CS4Teachers**   *Professional development workshop for K-12 teachers*

Designed and delivered 45 minute workshop for K-12 teachers on how to integrate algorithms and data structures ideas into their teaching. Description and Materials

**Committee Service**

- Undergraduate Admissions Committee (Summer 2021, Winter 2022, Summer 2022, Winter 2023 [transfer students], Summer 2023, Winter 2024 [transfer students], Summer 2024)

- Teaching Track Faculty Search (2020-21, 2021-22, 2022-23, 2023-24 cycles)

- PhD Teaching Credential (2022-23)

# External Service

**Peer Review**

- Reviewer for SIGCSE 2023, 2024
- External reviewer for: ITCS 2017, ESA 2017, SODA 2018, FOCS 2018, SODA 2019, Journal of Combinatorial Optimization, FOCS 2021

**Panels**

- Panelist for Teaching Oriented Academic Careers at FCRC 2023
- Panelist for CSGrad4US panel on PhD process (Oct. 2021)

# Awards

ACM Teaching award 2021-22 (for 300-level courses)
Allen School Bob Bandes TA Award (2018-19)

# Publications

### In Conference Proceedings

[1] Robbie Weber. Using alternative grading in a non-major algorithms course. In *Proceedings of the 54th ACM Technical Symposium on Computer Science Education V. 1*, SIGCSE 2023, page 638–644, New York, NY, USA, 2023. Association for Computing Machinery

[2] Anna R Karlin, Shayan Oveis Gharan, and Robbie Weber. A simply exponential upper bound on the maximum number of stable matchings. In *Proceedings of the 50th Annual ACM SIGACT Symposium on Theory of Computing*, pages 920–925, 2018

### Ph.D. Dissertation

[3] Robbie Weber. *Paring Things Off: Counting Stable Matchings, Finding Your Ride, and Designing Tournaments.* PhD thesis, University of Washington, Seattle, WA, June 2020