# Software Engineering Program

Presentation to the Board
Patrick Lam

December 10, 2019

Faculty of Engineering
Faculty of Mathematics

UNIVERSITY OF
**WATERLOO**

# Part I

## **Succession Plan**

# Program Administration

| 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |

**Director**

| Jo Atlee | | | | | Bill Wilson | Charlie Clarke | | | | | | Andrew Morton | | | | Patrick Lam | | Derek Rayside | |

**Associate Director**

| Matt Armstrong | | | Norm Young | Andrew Morton | | | | | | | | Patrick Lam | | | Mahesh Tripunitara | | Derek Rayside | Victoria Sakhnini | |

**Assistant to Director / Ugrad Advisor & Coordinator**

| Shaz Rahaman | | | | | | | | | | | | Kate Andrey | Shaz Rahaman | | Liz Skibicki | Shaz Rahaman | | | |
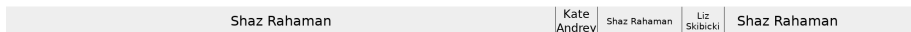
# Part II

# **Curriculum Committee Updates**

## Recent Past

- Removed one open elective ($3 \rightarrow 2$);
  accreditation visitor coincidentally
  encouraged us to remove requirements.
- Started to work on a
  first-year quantum physics course.
- Broadening the ATE list.

# Part III

## **Student Survey Results**

# 2019 Exit Survey (N=49): Expectations & Would Recommend

The on-campus portion of my engineering undergraduate program has met my expectations:

D = 0, d = 2, n = 6, a = 29, A = 13

The co-op portion of my engineering undergraduate program has met my expectations:

D = 1, d = 0, n = 0, a = 8, A = 41

I would recommend my program to other prospective students:

D = 0, d = 3, n = 7, a = 19, A = 21

Similar to 2018, though slightly less positive in general.

# 2019 Exit Survey: Cannot Program

Do you know of any classmates who cannot program (to a level that one would expect of an SE grad)? How many?

- 0: 32
- 1: 1
- 2: 2
- 5+: 3

# 2019 Exit Survey: Next Steps

In the year after graduation my next career step will be:

| | |
|---|---|
| Full-time, SE | 45 |
| Other/unknown | 2 |
| Grad school (CS/ECE) | 2 |
| Grad school (other) | 1 |

Do you plan to work on getting a professional engineering license in the next 5 years?

- Yes: 3
- No: 47

# Social Connectedness Survey

Poll broadcast to students:

How many people have you had an in-person social conversation with for more than 15 minutes last week?

| term | 0-2 | 3-9 | 10+ |
|------|-----|-----|-----|
| 1B | 7 (15%) | 14 (29%) | 27 (56%) |
| 3A | 4 (10%) | 29 (69%) | 9 (21%) |
| 4B | 0 (0%) | 18 (66%) | 9 (33%) |

Longer-term trends from W18, S18, F18, W19:

- 0-2: max of 21%
- 3-9: most responses here
- mean just below 10

## Workload Survey

| term | nominal load | contact hrs | total workload (hrs/week) (last year) |
|------|--------------|-------------|----------------------------------------|
| 1A | 5.5 | 28.25 | 55.9 (59.0) |
| 1B | 5.0 | 28 | 57.8 (51.5) |
| 2A | 6.0 | 27.25 | 55.0 (56.6) |
| 2B | 6.0 | 28 | 48.9 (53.9*) |
| 3A | 5.0 | 19.25 | 47.0 (39.5**) |
| 3B | 6.0 | 20.25 | 49.0 (43.5) |
| 4A | 5.0 | 17 | 36.2 (43.4) |
| 4B | 6.0 | 17 | 35.0 (47.6) |

\* load went from 6 to 5 courses; 3A will be 6

\*\* exceptionally, there was no HW-based SE 350 lab in W18

# SE Society



Founding Presidents:
Bilal Akhtar (SE 2019) & Spencer Dobrik (SE 2020).
On-Stream President:
Roxane Fruytier (SE 2021).

Part IV

**Space Update**

# Space Plan: Long-Term

SE admin space will move to DC 2523
    (construction about to start)
SE undergrad lounge moved to EIT 3143/3146 (thanks ECE)

Part V

# **Admissions, Graduations, and Retention**

# Admissions Data

|  | 2019 | f % | 2018 | f % | 2017 | f % | 2016 | f % | 2015 | f % |
|---|---|---|---|---|---|---|---|---|---|---|
| Applications | 1487 | 19 | 1555 |  | 1475 | 16 | 1340 | 17 | 1112 | 14 |
| Offers | 210 | 23 | 184 | 23 | 190 | 26 | 195 | 21 | 185 | 20 |
| Confirmations | 130 | 23 | 125 | 22 | 135 | 26 | 130 | 18 | 123 | 20 |
| OSS avg | 96.4 |  | 96.8 |  | 95.9 |  | 96.5 |  | 96.0 |  |
| OSS 10$^{\text{th}}$ dec | 94.2 |  | 95.0 |  | 93.2 |  | 94.3 |  | 92.5 |  |

# 2019 & 2018 Applications

2019 applications:

|          | apps | offers | confirms |
|----------|------|--------|----------|
| Domestic | 1062 | 173    | 115      |
| Visa     | 425  | 37     | 15       |

# Gender Counts



% female students in Software Engineering
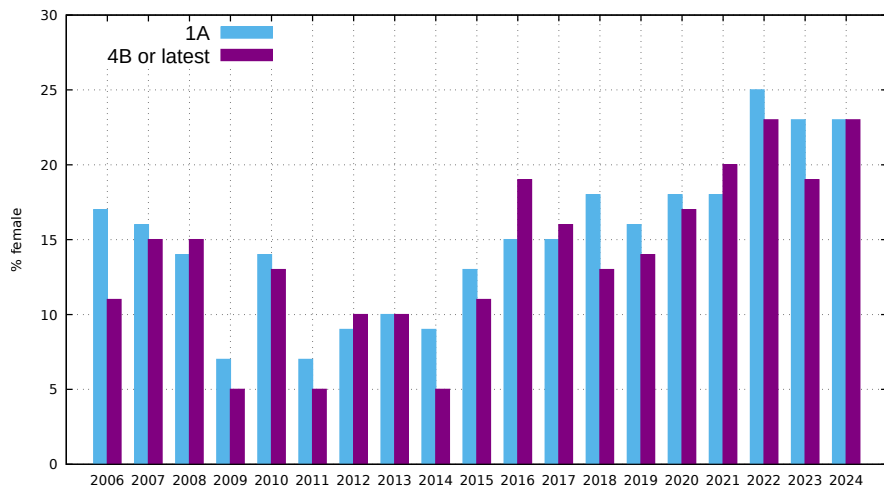
# Cohort Sizes
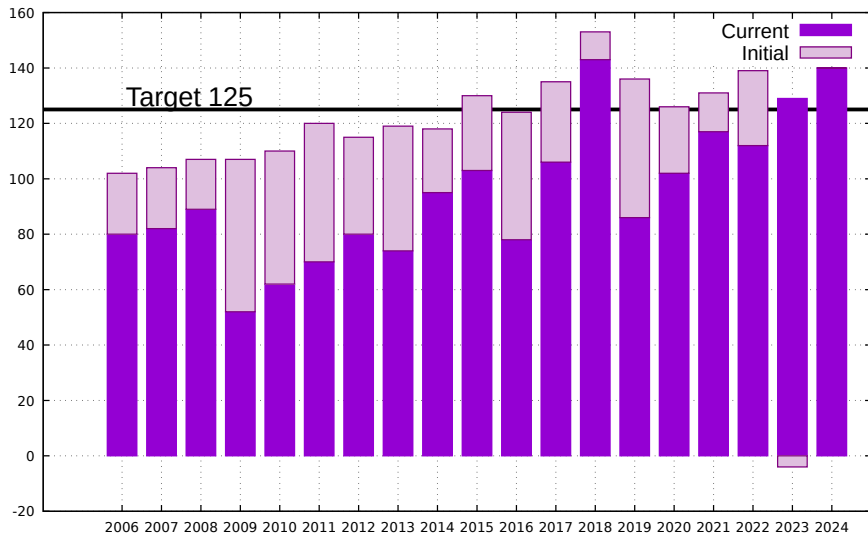
# Graduation Rates

Tracking each of the students that initially enrolled in the BSE:

| class of | # initial | % BSE | % BSE or BCS | % B.any |
|----------|-----------|-------|--------------|---------|
| 2014 | 115 | 65 | 77 | 82 |
| 2015 | 131 | 67 | 75 | 82 |
| 2016 | 122 | 63 | 71 | 75 |
| 2017 | 137 | 73 | 86 | 88 |
| 2018 | 151 | 81 | 89 | 90 |
| 2019 | 136 | 61 | 81 | 82 |

# 2019 BSE Graduates

- 89 students were granted BSEs in 2019.
- 91% of the 2019 graduates started with us in 2014.
- 7 students transferred into this class internally + 1 external.
- 2 students originally from SE 2018 (repeaters).

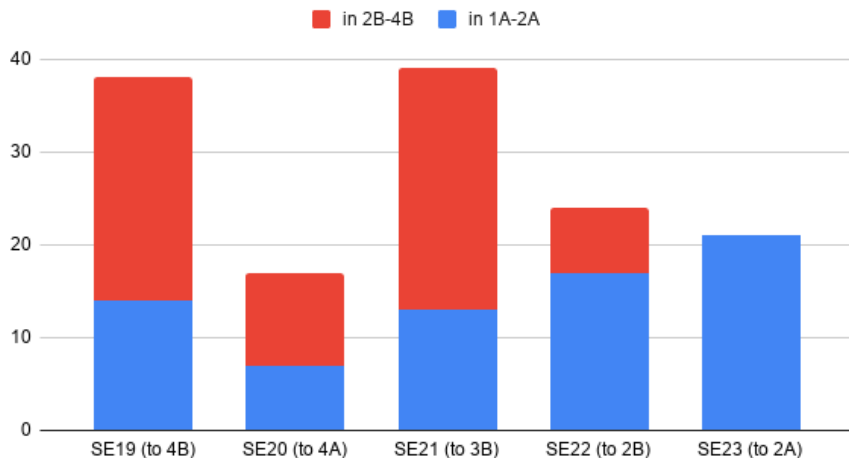# BSE Degrees Granted (total 2006–2019 = 1200)
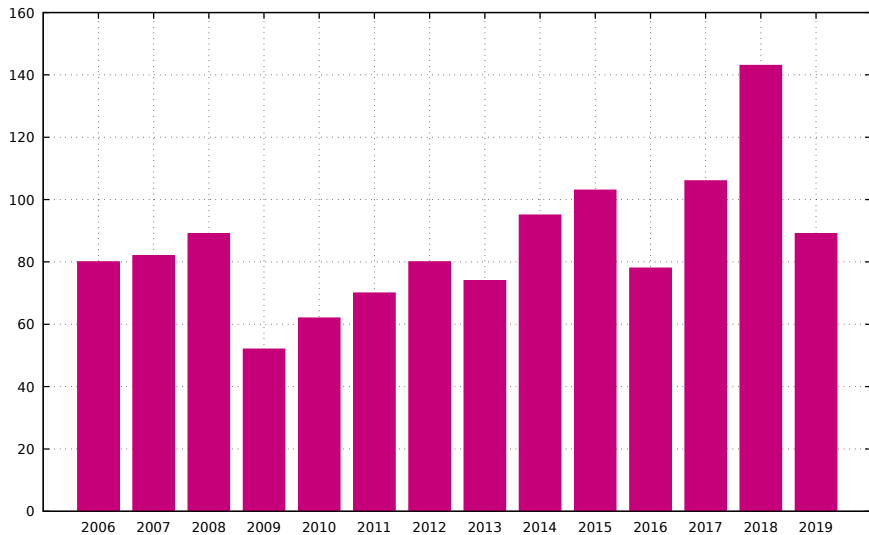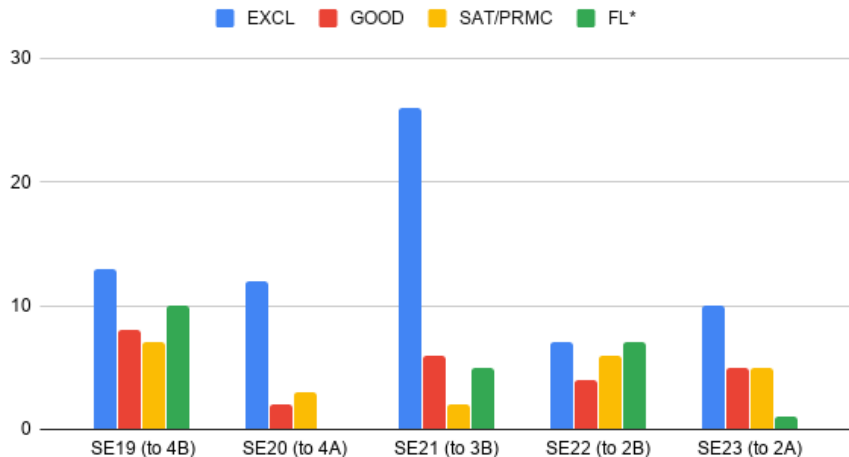
Part VI

**Transfers**

# Transfer Counts



# students transferred to CS

■ in 2B-4B  ■ in 1A-2A

# Transferred students: Last SE standing



Transferred students by last SE standing

# Transferred students: Last SE term



Terms in which students transferred

■ Year 1  ■ Year 2  ■ Year 3  ■ Year 4