The State of the Software Engineering Program

Patrick Lam

July 17, 2019

Faculty of Engineering
Faculty of Mathematics

UNIVERSITY OF
WATERLOO

Part I

What we said last time...

Years 2-3

- ✓ DB to 2nd year
- More stats: discussing making STAT 206 a 0.75 credit course.
  (F18: 5 students took STAT 230;
  F17: 14 students took STAT 230).
- ✓ Econ/impact: MSCI 261 → ECE 192

SE 463/464/465

✓ CS 247/SE 464 overlap taskforce recommendations
  - archive CS 247 exams for SE 464 instructor
  - SE 464: early assignment/test on CS247 material
  - SE 464: no course project
- we're talking about SE 463 today
- for information: SE 465 to be taught by new faculty Chengnian Sun

New ATEs

Did we add any since 2017? I don't think so.

Student wellness

Kind of talking about that today (indirectly)...

We now have more data,
    which we can talk about next.

Part II

Curriculum Committee Updates

Recent Changes: Done

- Curriculum shuffle,
    reducing SE from 44.5 to 44 courses:
  - MSCI 261 $\rightarrow$ ECE 192 (in 2B);
  - CS 348 from 3B to 2B;
  - ECE 358 from 4A to 3B;
  - elective from 4B to 4A.

- Abolish Technical Presentation Milestone (2B)
- Streamline Work Report guidelines
    (5000 words max)

Recent Changes (Underway)

Approved by SE Curriculum Committee/Math UAC/Eng FUGS:

- Reducing open electives from 3 to 2 (one elective in either 3A or 3B);
- Allowing CHEM 120 for CHE 102 & flexibility in term taken.

Resulting loads:

1A	5.5	1B	5
2A	6	2B	5.5
3A	5/6	3B	5/6
4A	5	4B	5

If approved, total course count will be 43.

Other Curriculum Changes

- Ideas Clinic in SE 101.

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%)
2B	4 (9%)	24 (53%)	18 (40%)
4A	2 (8%)	14 (58%)	8 (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	59.0 (57.5)
1B	5.0	28	57.8 (51.5)
2A	6.0	27.25	56.6 (51.3)
2B	5.0	20	48.9 (57.1)
3A	5.0	19.25	47.0 (39.5*)
3B	6.0	20.25	43.5 (56.3)
4A	5.0	17	36.2 (43.4)
4B	6.0	17	35.0 (47.6)

* 3A is going to 6.0 as of the class of 2022 and had no HW lab last year; 2B was at 5.0 last year.

SE Society

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

Part IV

Admissions, Graduations, and Retention

Admissions Data

	2019	f %	2018	f %	2017	f %	2016	f %	2015	f %
Applications	1480	24.3	1555		1475	16	1340	17	1112	14
Offers	214		184	23	190	26	195	21	185	20
Accepts	140		125	22	135	26	130	18	123	20
OSS avg	96.4		96.8		95.9		96.5		96.0	
OSS 10th dec	94.2		95.0		93.2		94.3		92.5	

2019 & 2018 Applications

2019 applications:

	OSS	NOSS	total
Domestic	764	280	1036
Visa	73	363	426

2018 applications:

	OSS	NOSS	total
Domestic	782	292	1074
Visa	79	402	481

Gender Counts

% female students in Software Engineering
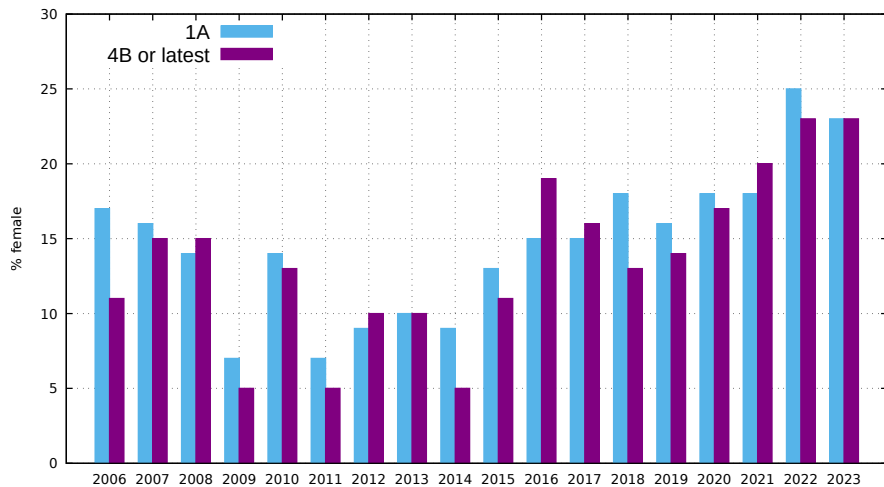
Cohort Sizes
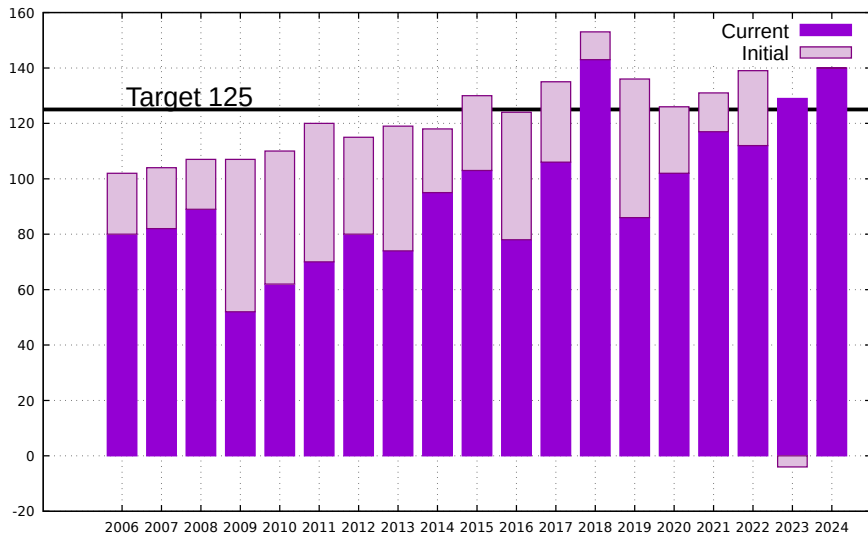
Graduation Rates

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

class of	# initial	% BSE	% BSE or BCS	% B.any
2014	113	71	82	85
2015	131	67	78	82
2016	122	65	79	85
2017	129	75	89	91
2018	148	82	89	90
2019	133	59	79	80

2019 BSE Graduates

- 92 students were granted BSEs in 2019.
- 87% of the 2019 graduates started with us in 2014.
- 8 students transferred into this class internally + 1 external.
- 2 students originally from SE 2018 (repeaters), 1 from SE 2017. (1 start term S14?!)

BSE Degrees Granted (total 2006–2019 = 1200)