



MANAGEMENT ENGINEERING

— 2021 —

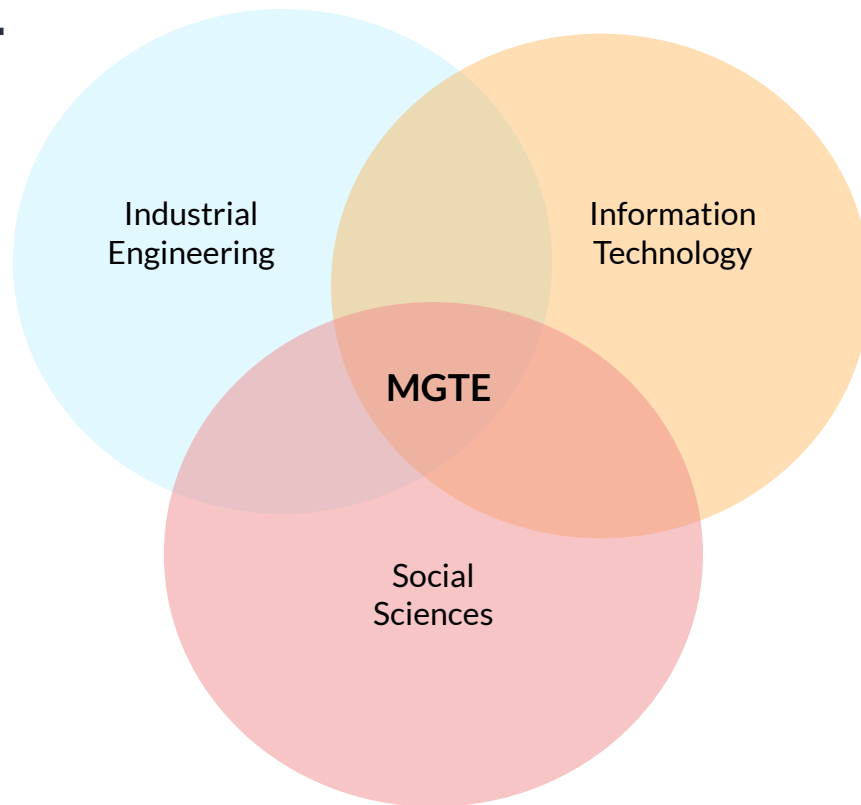
CLASS PROFILE

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Oriana Coburn and Tanushree Sharma

WHAT'S MANAGEMENT ENGINEERING?

The classic question.

The University of Waterloo Management Engineering (MGTE or MGMT) program provides undergraduate students with an interdisciplinary engineering education that covers a breadth of information systems, operations research, and social sciences. These can be used to understand, design, implement, and manage complex management systems upon which organizations depend on.



WHAT YOU NEED TO KNOW

In 2016, 77 students made up our 1A class - 70 of which completed 4B. Students were invited to respond to a survey in May 2021. All questions were optional and for the sake of privacy, responses remained anonymous.

49 students participated in the survey, yielding a 70% survey completion rate. Any reference to the “class” in this survey refers to the assumption that the respondents of this survey represent the MGTE class of 2021. Conclusions made in this survey do not attempt to generalize university experiences beyond that of this cohort, nor do they represent the views of the University of Waterloo or department of Management Sciences.

Headcount data accessed through [UWaterloo Data & Statistics](#).

Started school: **2016**

Ended school: **2021**

Stream 8

36 compulsory courses

6 electives

5-6 co-op terms

1 USD: 1.25 CAD exchange rate

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Fall 2016 — 1A
Among many things, we also
learned how to take better photos.



DEMOGRAPHICS

Students as diverse as our courses.

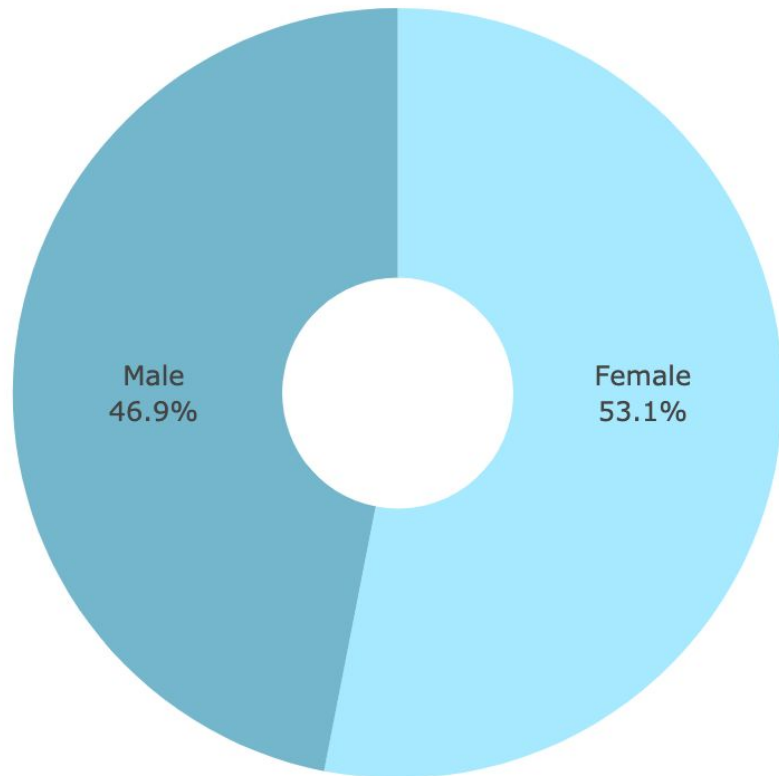
Background
Family
Highschool
Post-secondary

What gender do you identify with?

~53%

of respondents were female*

In 2016, the average female enrollment across the faculty of engineering was 29%.



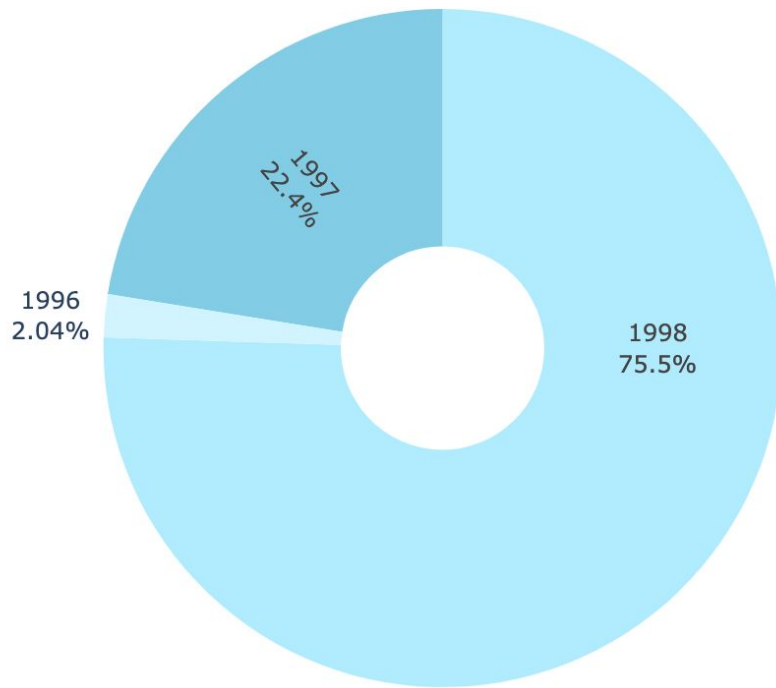
*According to the faculty, in 2016 first year MGTE enrollment was 47% female.

What year were you born in?

~75%

of our class was born in 1998.

Whether having attended CEGEP, taken a gap year after high school or switched programs in university, we all managed to find our way.

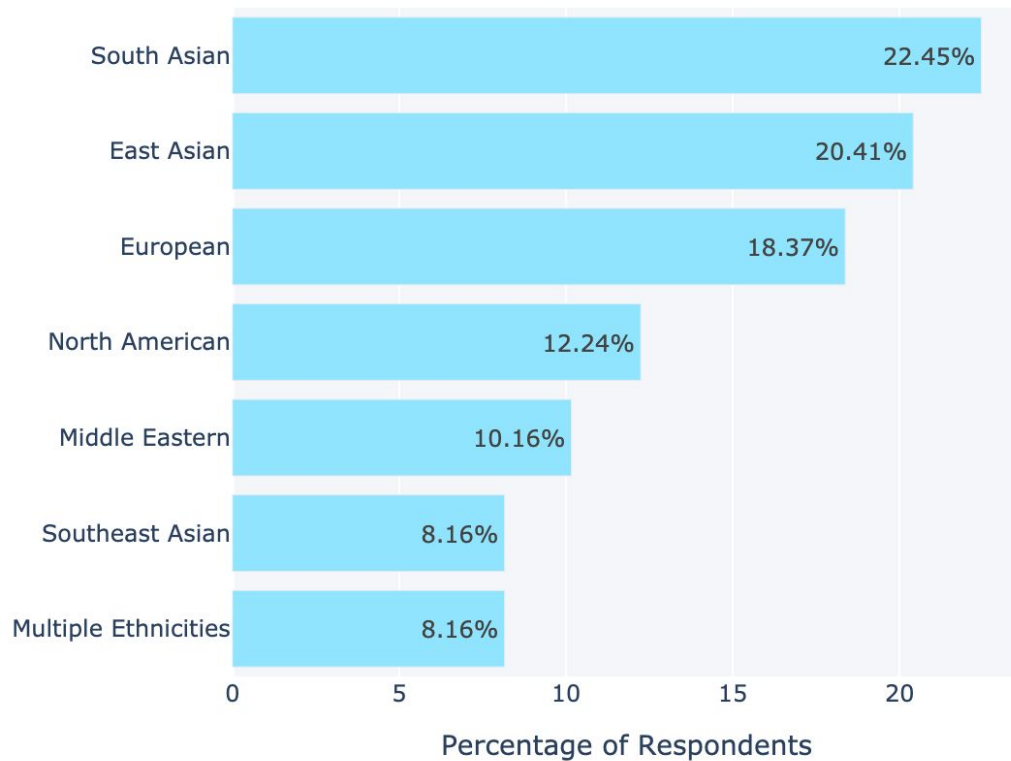


~51%

of our class immigrated to Canada.

4.1% of respondents were international students.

What is your ethnicity?

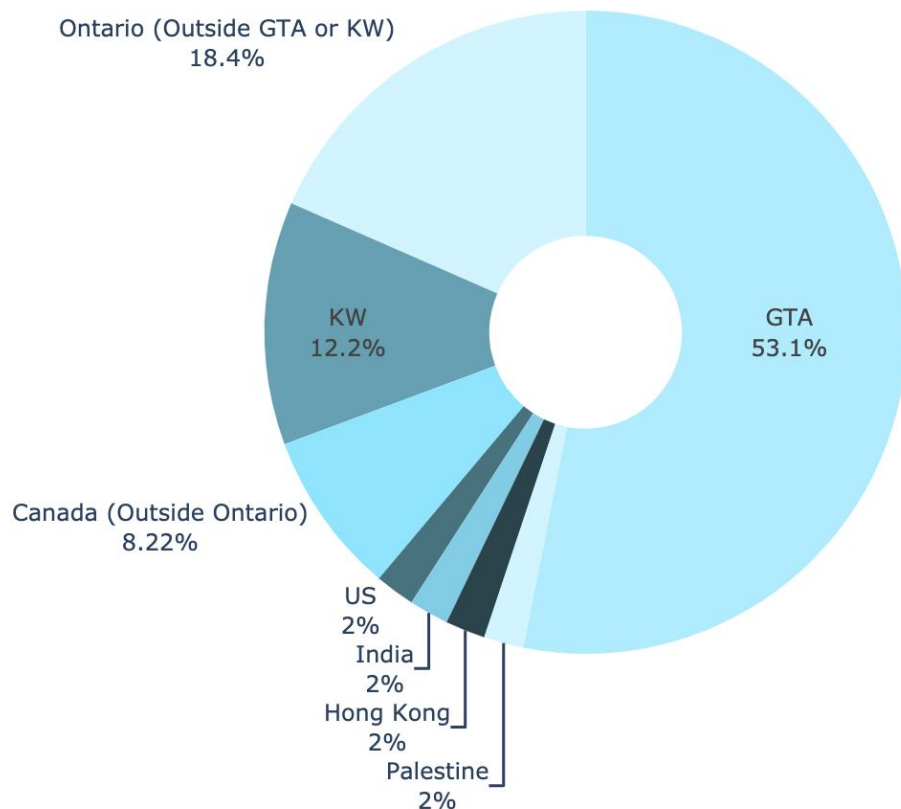


~53%

of respondents called the
GTA home.

92% of respondents call Canada home.

Where is home?

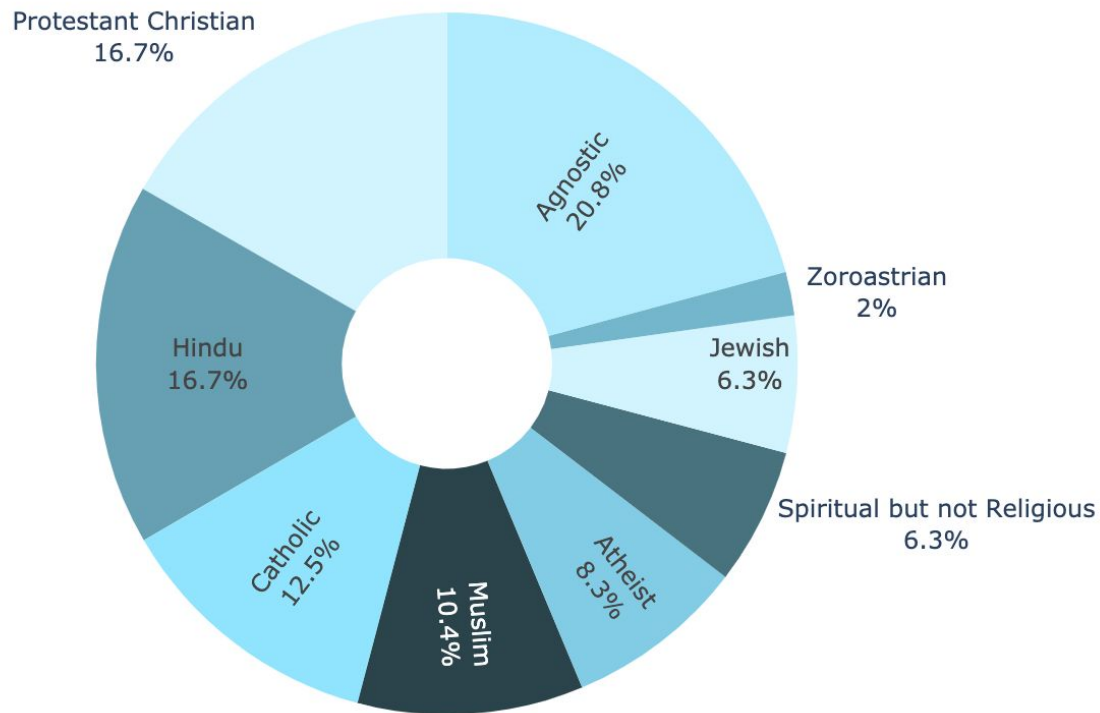


What are your religious beliefs?

~21%

of respondents hold
Agnostic beliefs.

We have a diverse class!

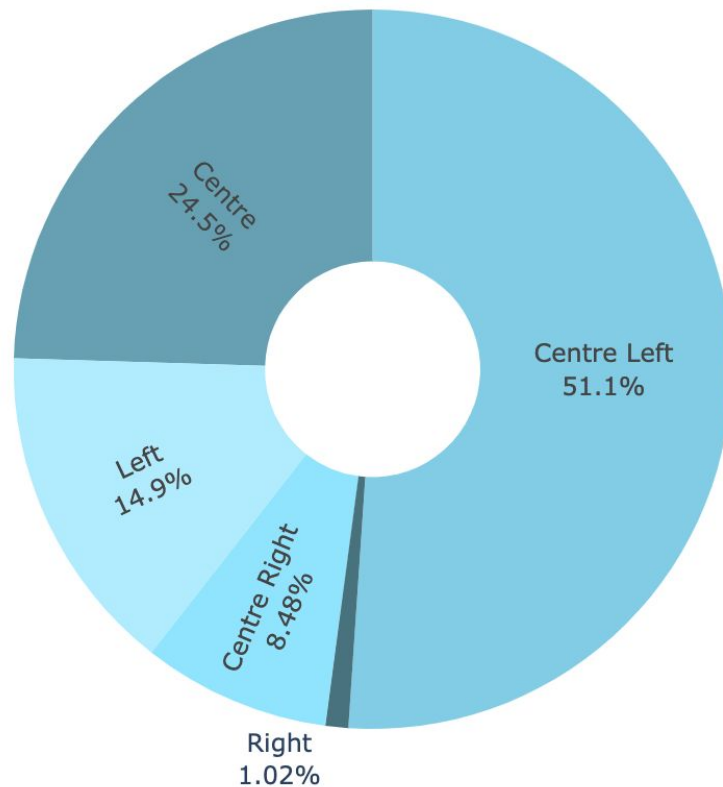


What are your political beliefs?

~51%

leaned to the center left of
the political spectrum.

Only about **1%** of respondents said they held
firmly right-leaning political views.

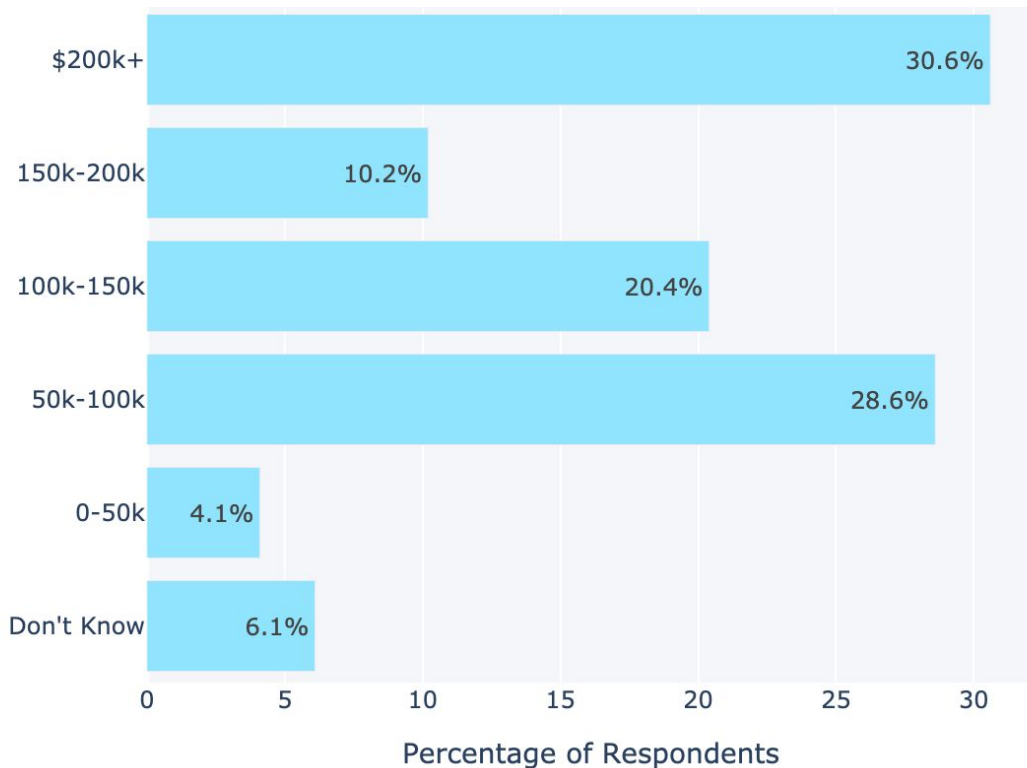


What was your combined family income
at the beginning of university?

~61%

of families earned more than
the median Canadian family
income

The median Canadian after-tax income of
couples with children was reported as
\$94,500 in 2016.

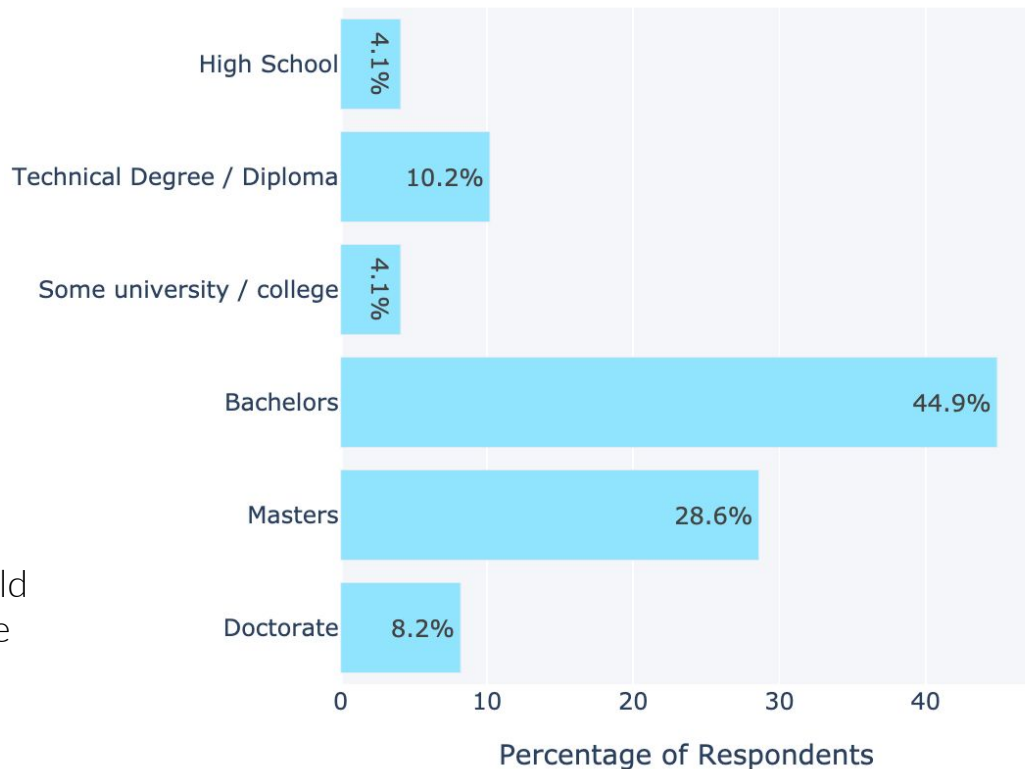


What was the highest level of education completed by your parents?

~82%

of the class had at least one university educated parent

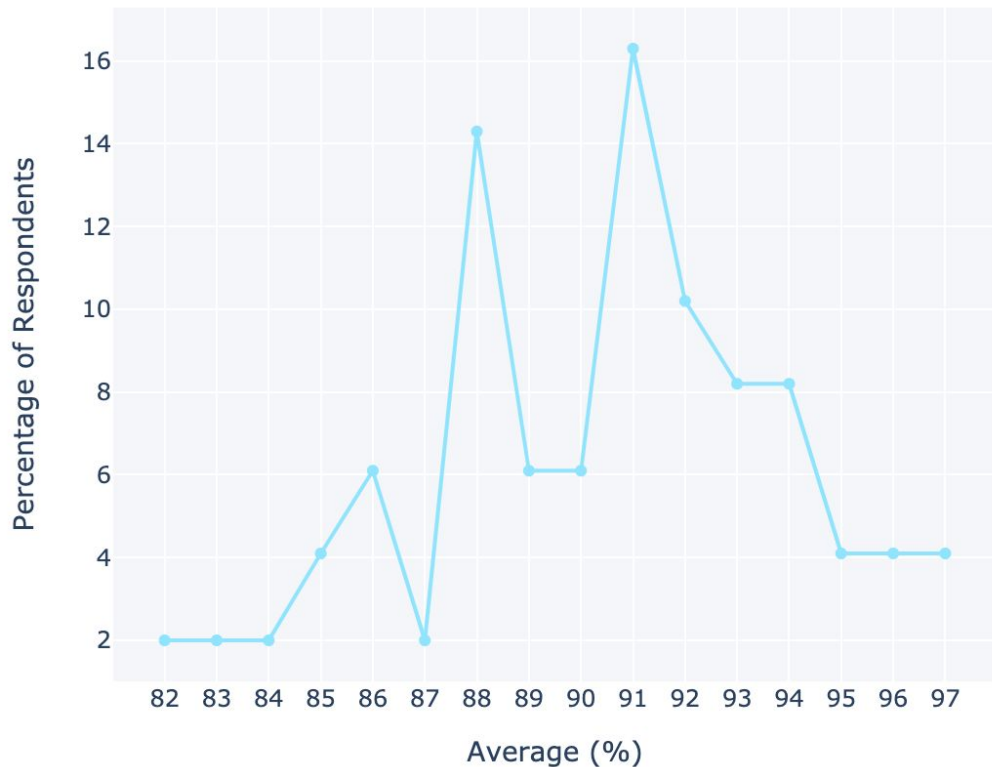
25% of respondents indicated that they would pursue a Masters degree at some point in the future. It's interestingly comparable to the percentage of parents that held a masters.



What was your high school entrance average?

~91%

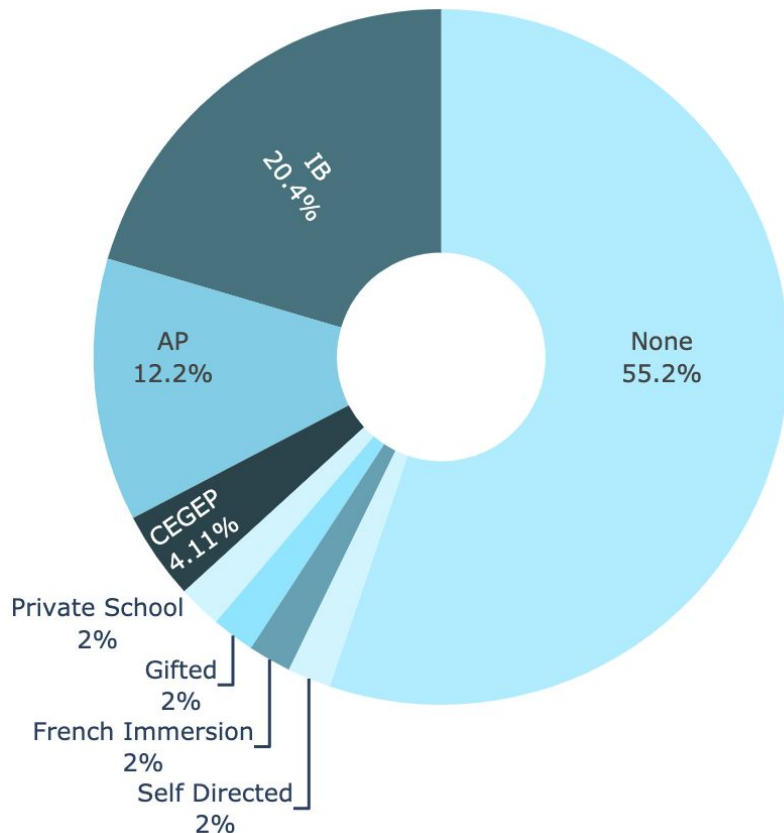
was the average admission
average in 2016



Were you in a specialized high school program?

~45%

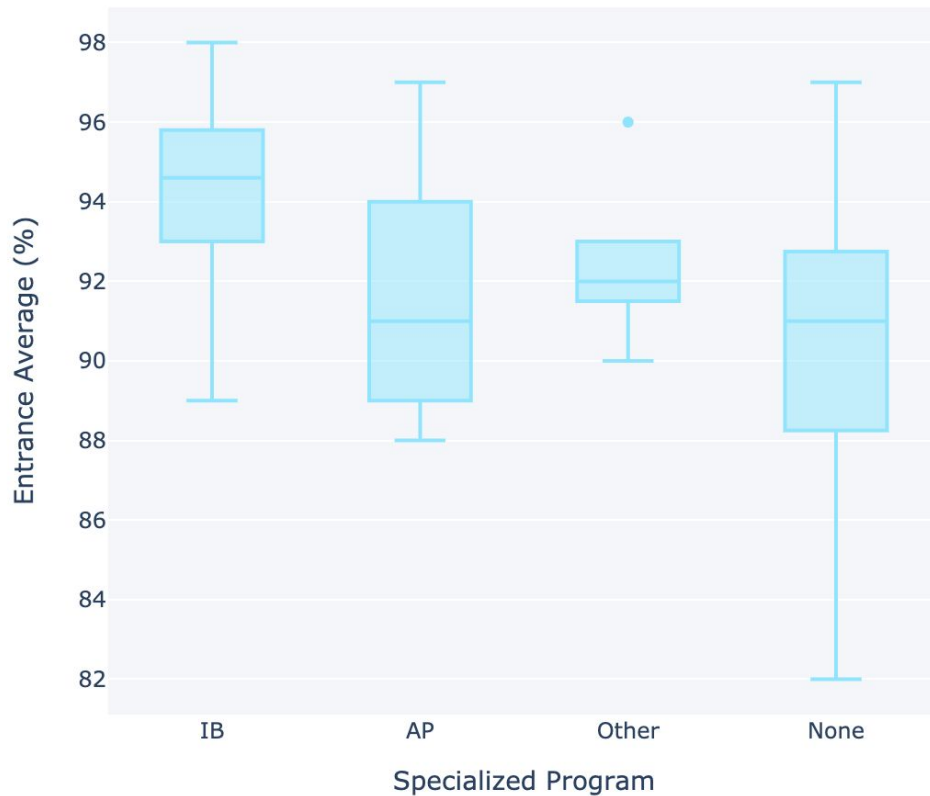
of the class was enrolled in a specialized high school program



IB

students had distinctly
higher entrance averages

Analysis: Did enrolling in a specialized high school
program affect entrance averages?

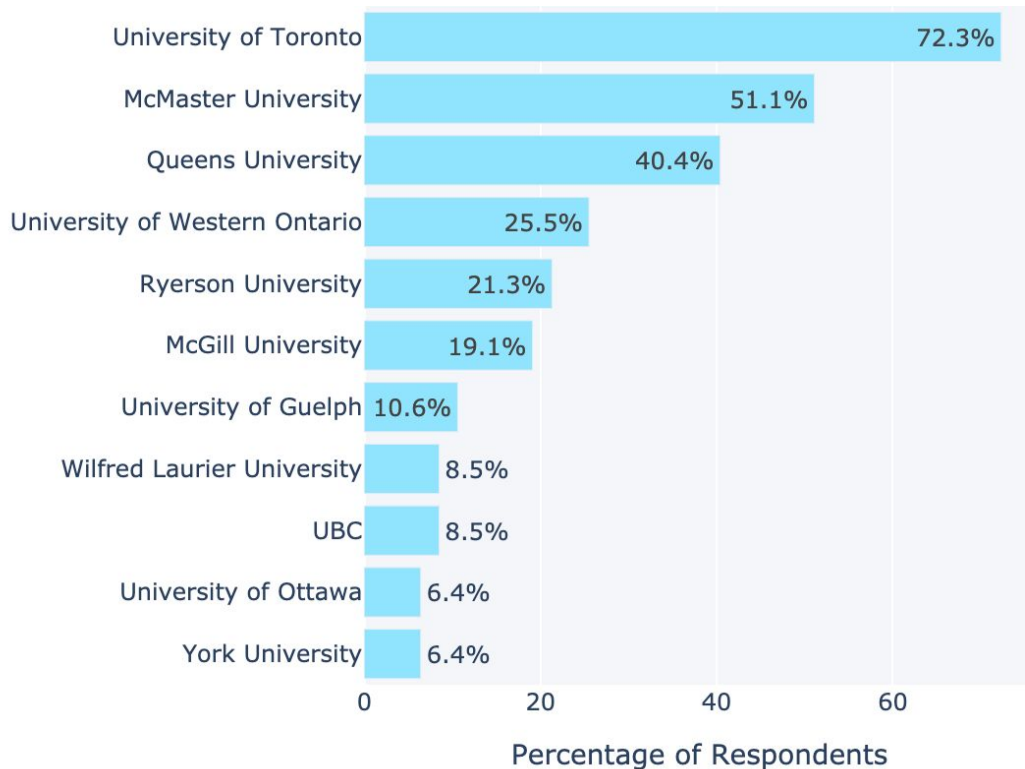


What other universities did you consider?



UNIVERSITY OF
TORONTO

was a top contender for many of us when thinking of other schools. This isn't surprising given UW and UofT's competition for the top engineering program in Canada.

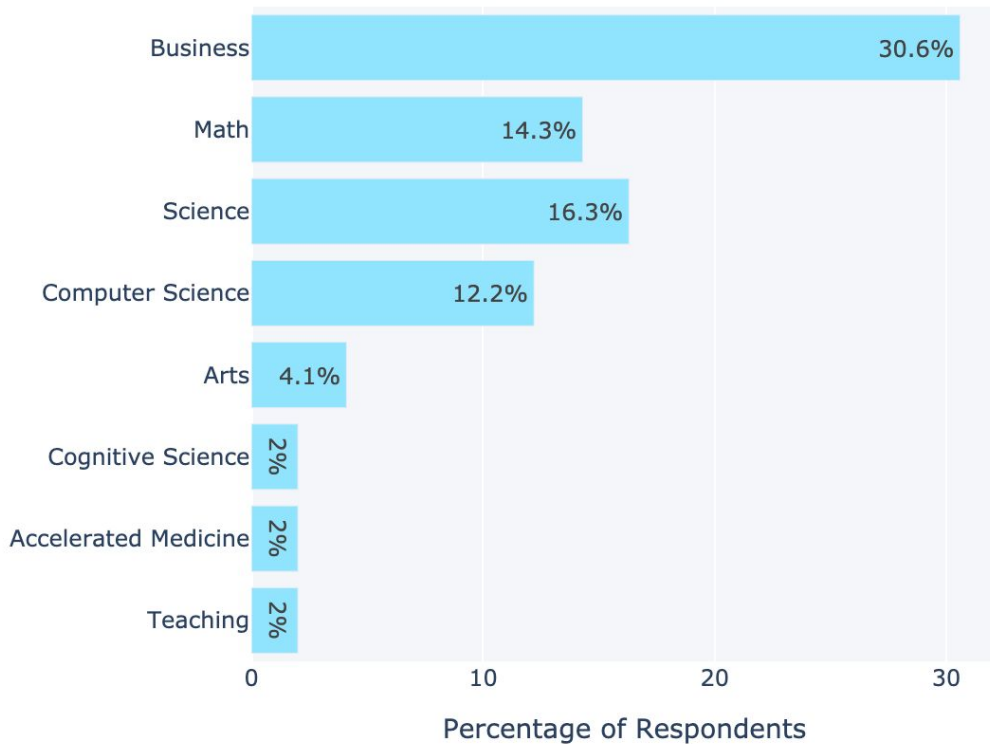


What other degrees did you consider?

~47%

of us would still have
pursued a degree in STEM

31% of respondents were considering a
business degree instead.

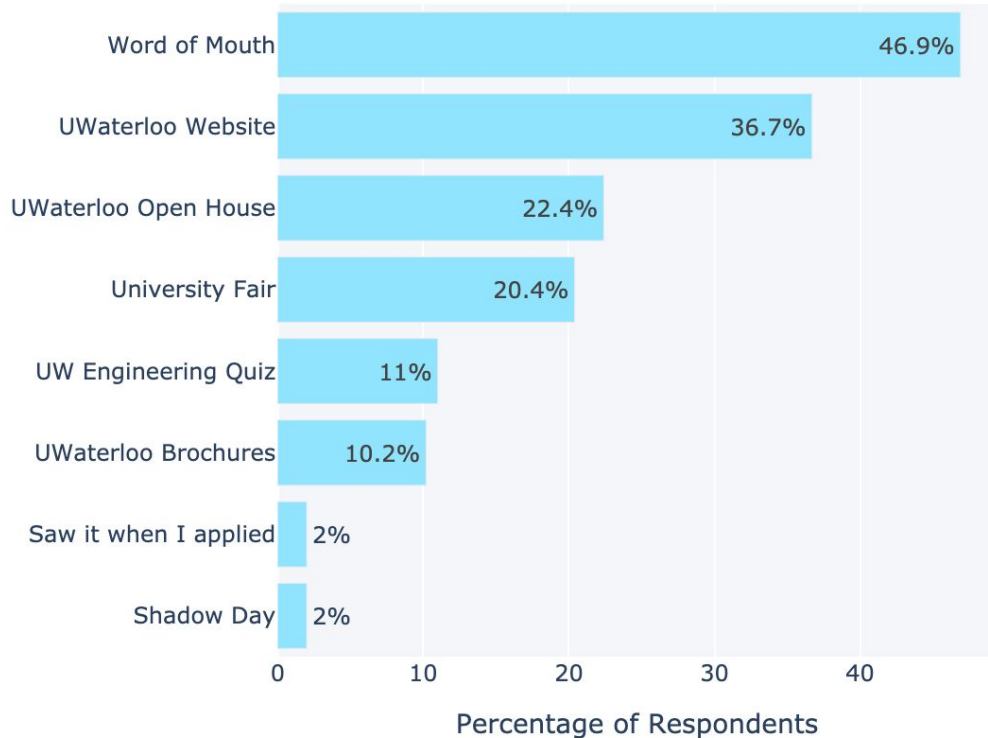


How did you discover MGTE?

~47%

of us heard about MGTE
through word of mouth

Management Engineering must have quite the reputation. The MGTE cohort size has grown steadily from **77 first year students in 2016** to **100 first year students in 2020**.

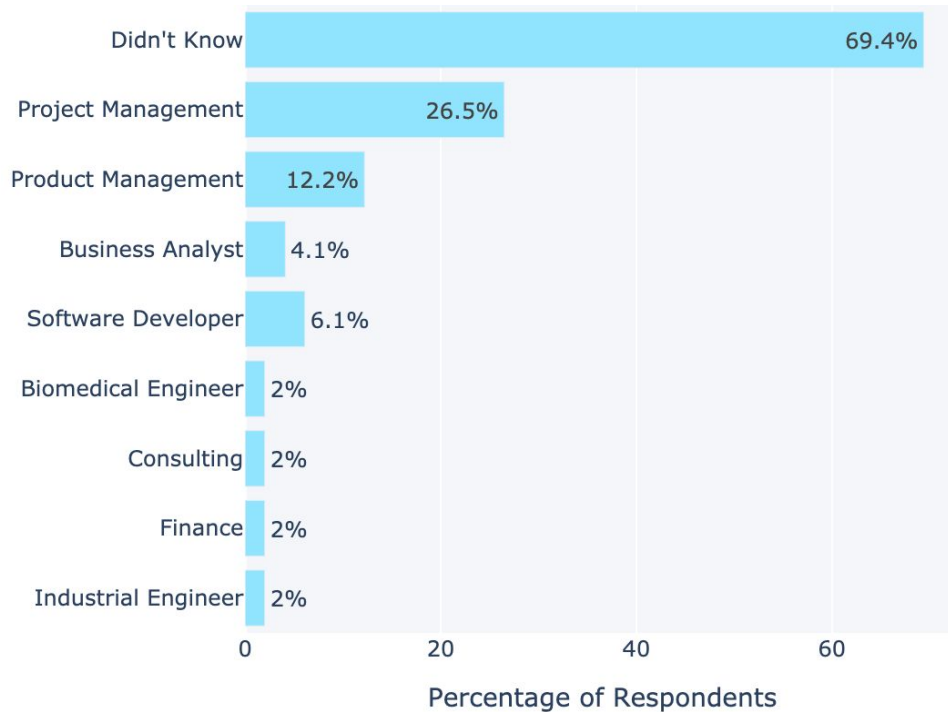


What was your ideal career upon
entering UWaterloo?

~69%

**of us had no idea what
career we wanted to pursue**

Lucky for us, co-op helped us figure it out
along the way!





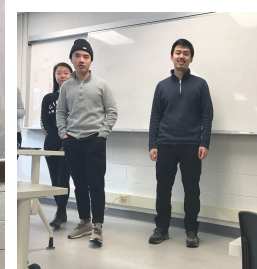
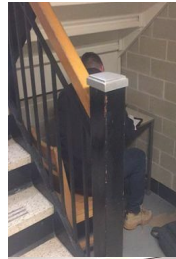
Winter 2017 — 1B
All smiles after making it
through first year.



ACADEMICS

Learning is fun...
sometimes.

Averages
Attendance
Courses
FYDP

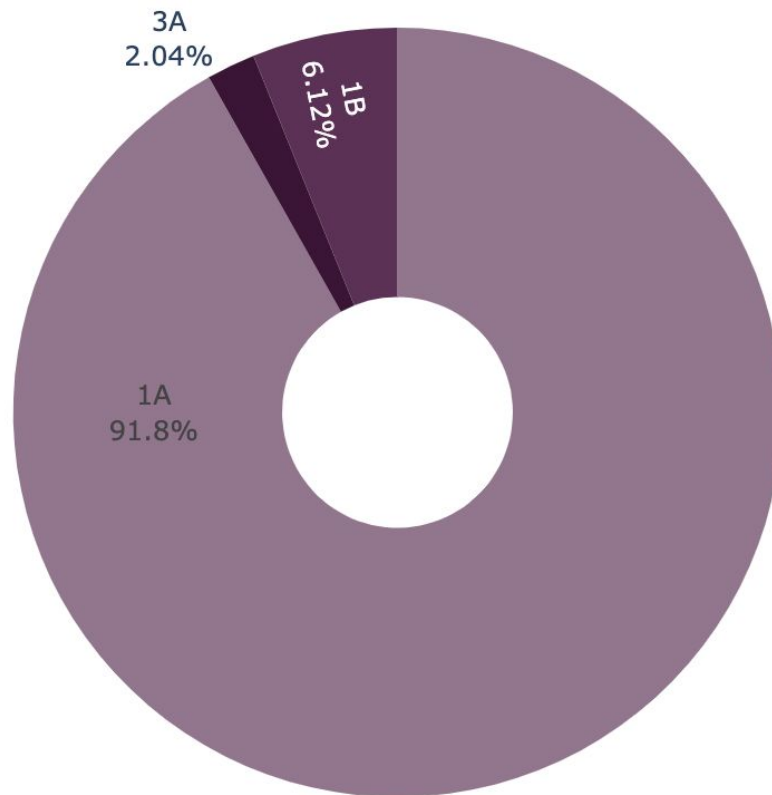


When did you join the MGTE 2021 cohort?

~92%

of our class joined in 1A

Most of us were here from the very start, along with a few people that trickled in later on in 1B and 3A.

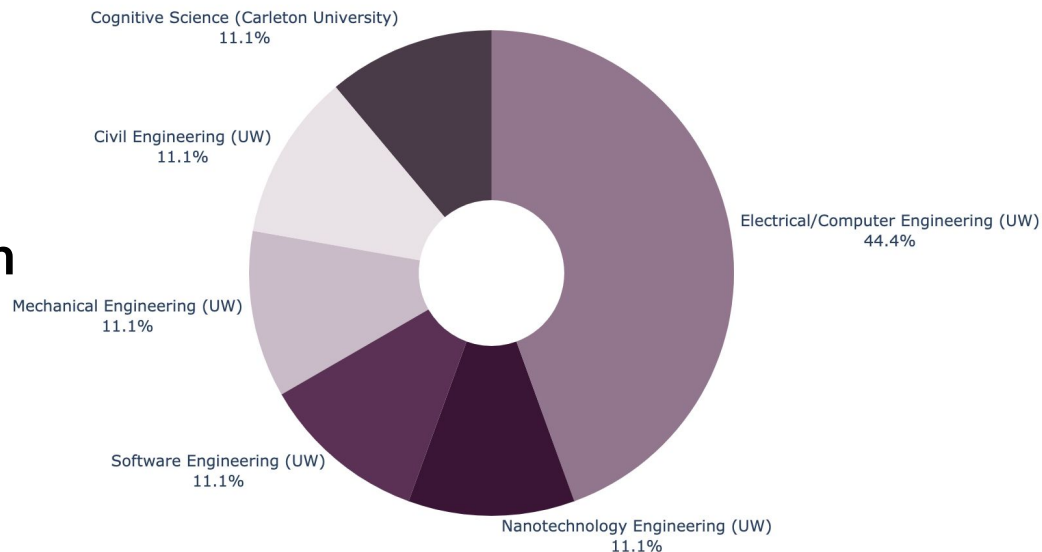


Did you transfer into MGTE 2021?

~18%

of our class transferred in from
different programs

Most of us transferred in from other
engineering programs at UWaterloo.



Did you go on exchange?

3

of our classmates went on
exchange during the 3B
academic term



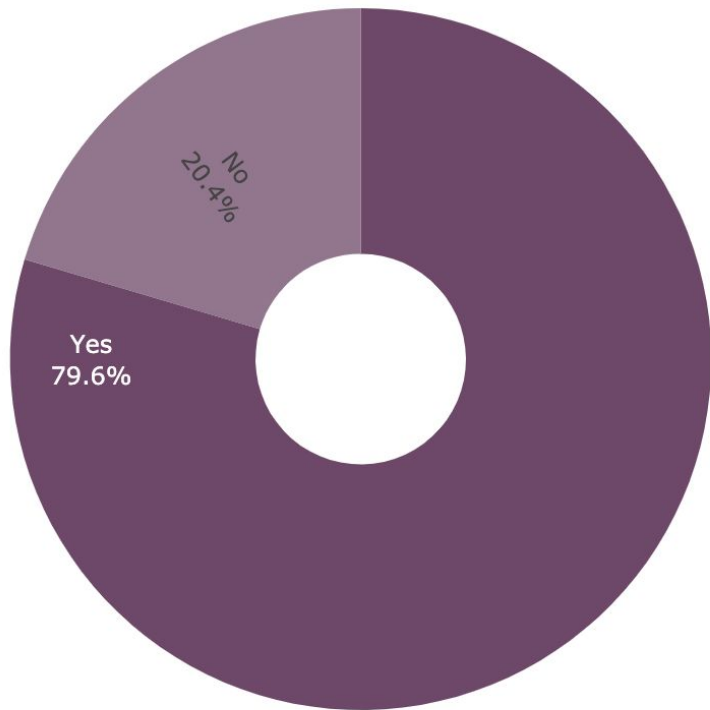
University of Oulu



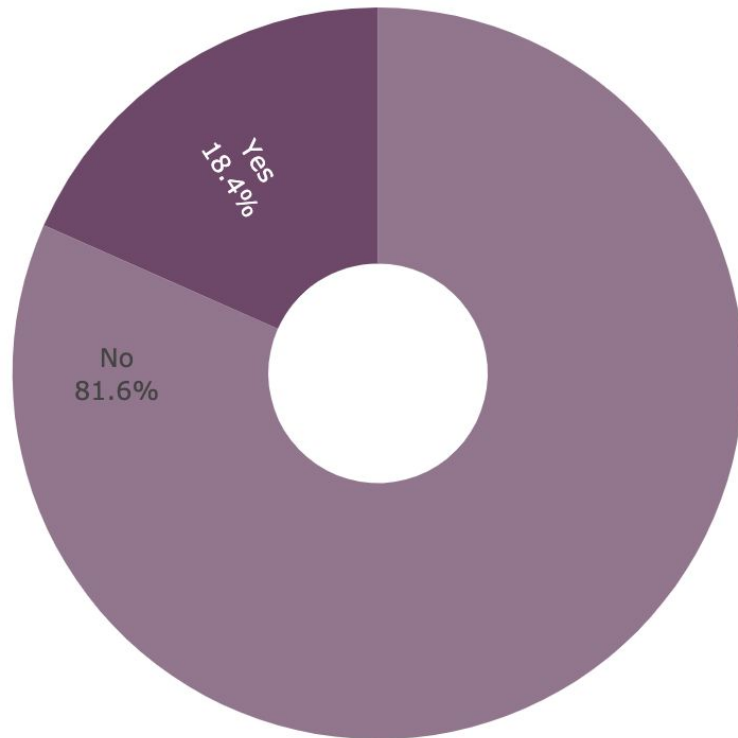
DTU, Technical University of Denmark



Have you failed an exam?



Have you failed a course?

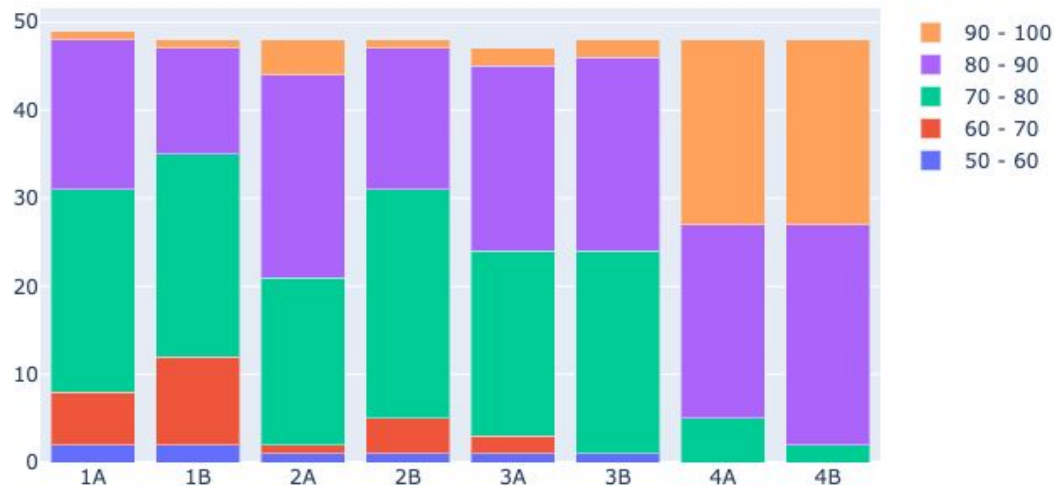


Failures happen and **that's okay** — especially when they involve CHE 102 or PHY 115.
We learn the most from our own shortcomings.

What were your term averages?

Term averages were the highest in 4A and 4B, while 1B had the lowest term average

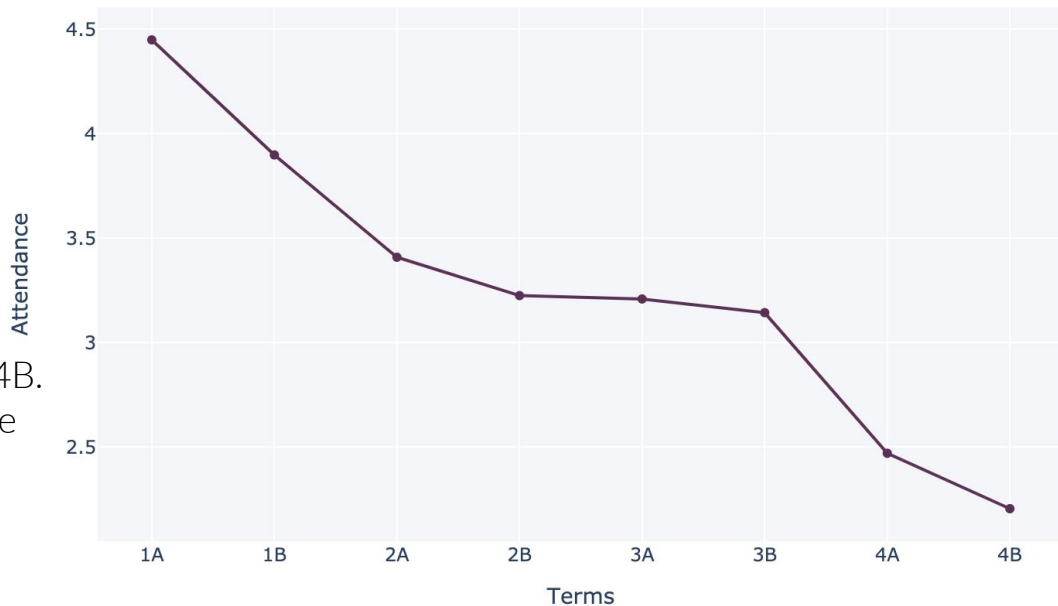
1B and 2B were heavier course loads, with 6 required courses, compared to the standard 5.



How was your attendance each term?

Despite the decline in attendance, term averages peaked in 4A and 4B.

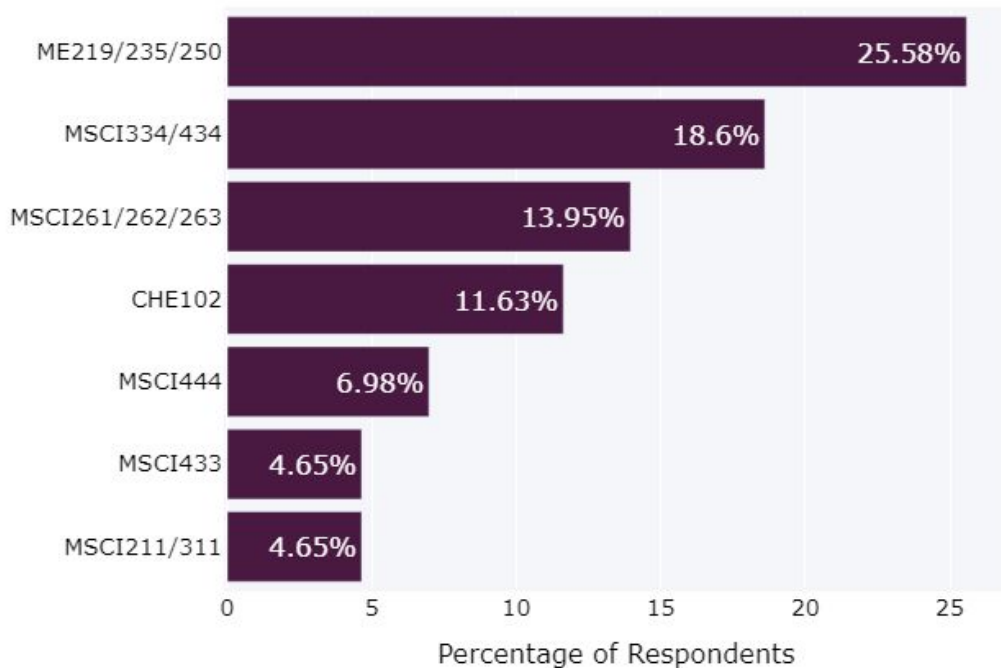
Attendance dropped significantly in 4A and 4B. This could be attributed to the fact that these terms were held online.



1 : Went to no classes, 5 : Went to all classes

What were the least useful compulsory courses?

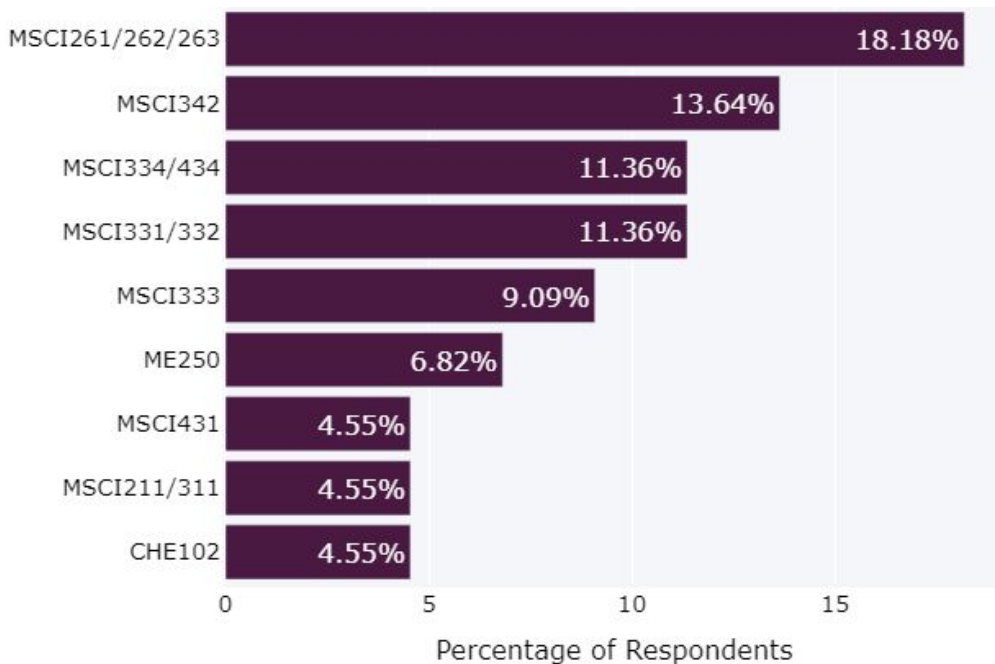
The least useful compulsory courses amongst our cohort included **ME 219/235/250** (Mechanics of Deformable Solids, Material Science and Thermodynamics) , and **MSCI 334/434** (Operations Planning and Inventory Control, Supply Chain Management).



*Courses listed on this graph represent those with more than 2 selections by respondents

What were your least favourite compulsory courses?

The least favourite compulsory courses amongst our cohort included **MSCI 261/262/263** (Engineering Economics, Managerial and Cost Accounting, Managerial Economics) , and **MSCI 342** (Principles of Software Engineering).

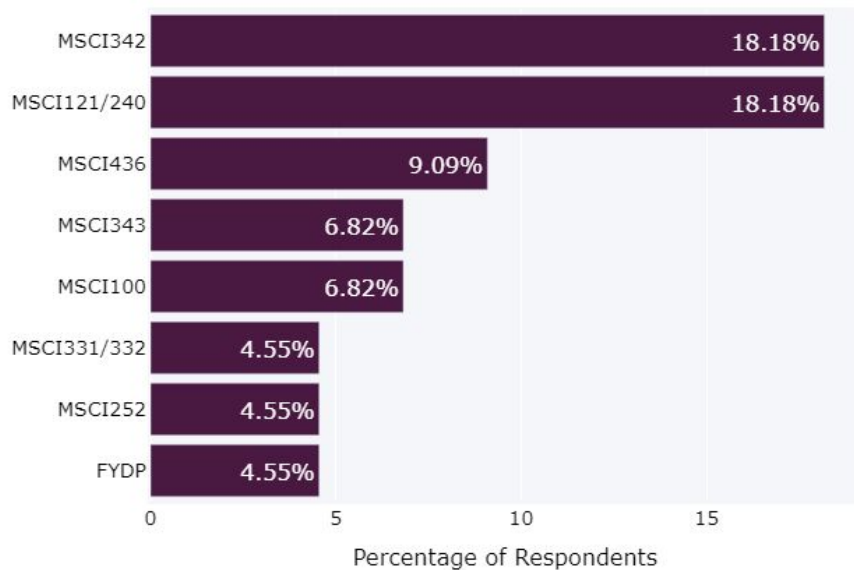


*Courses listed on this graph represent those with more than 2 selections by respondents

What were the most useful compulsory courses?

Our class found the technical courses offered by the MSCI department to be quite useful

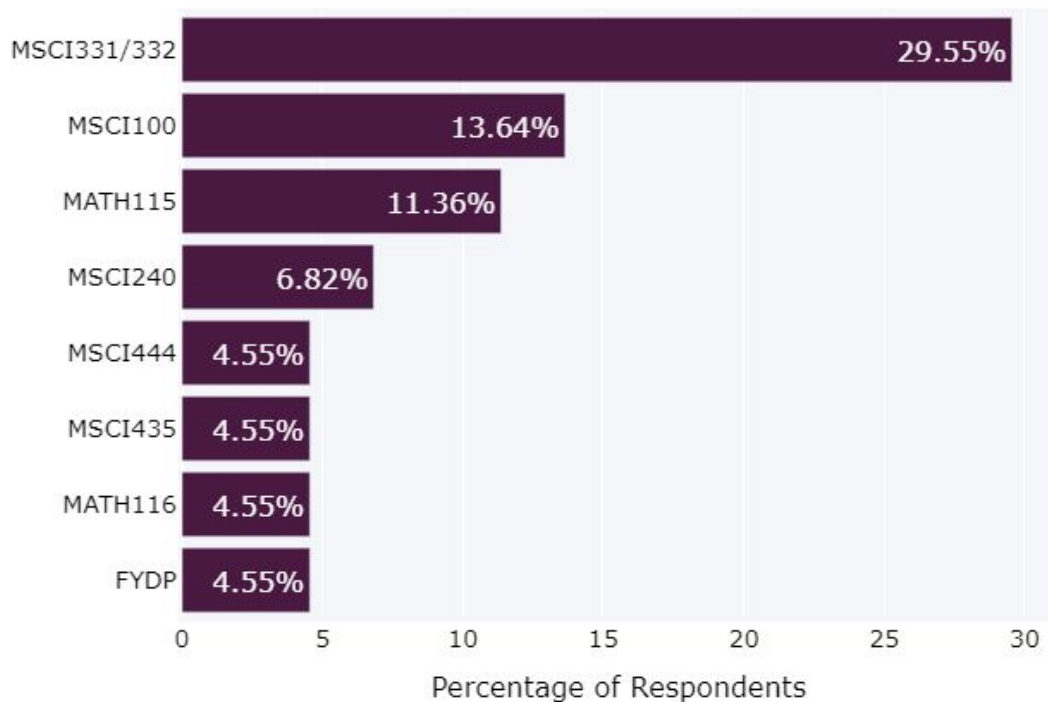
An interest in software development seemed to be quite prevalent within our class, as many noted that courses such as **MSCI 342** (Principles Software Engineering) and **MSCI 121 & MSCI 240** (Programming, Data Structures and Algorithms) were the most useful.



*Courses listed on this graph represent those with more than 2 selections by respondents

What were your favourite compulsory courses?

The favourite compulsory courses amongst our cohort included **MSCI 331/332** (Optimization), **MSCI 100** (Management Engineering Concepts), and **Math 115** (Linear Algebra).



*Courses listed on this graph represent those with more than 2 selections by respondents

What were the most common technical electives?

The most common technical electives taken by our cohort included Data Warehousing and Mining, Human-Centered Interaction, and Decision Support Systems.



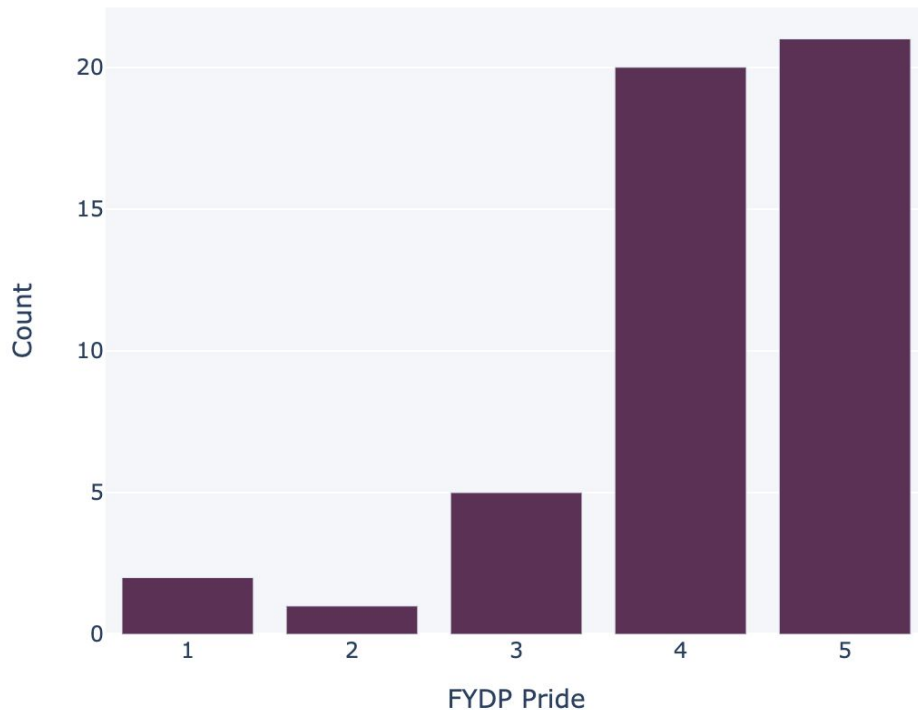
*Courses listed on this graph represent those with more than 2 selections by respondents

How proud are you of your FYDP?

Overall, we're quite proud of our Fourth Year Design Projects. Our hard work throughout 4A, 4B and in some cases co-op was well recognized by faculty, clients and peers.

Projects were delivered entirely remotely, with many groups juggling meetings spanning multiple time zones - impressive!

Despite this, **~65%** of us were happy to say farewell to our projects after symposium and will not continue to work on them.



WaterlooStudies



Tiny Helper



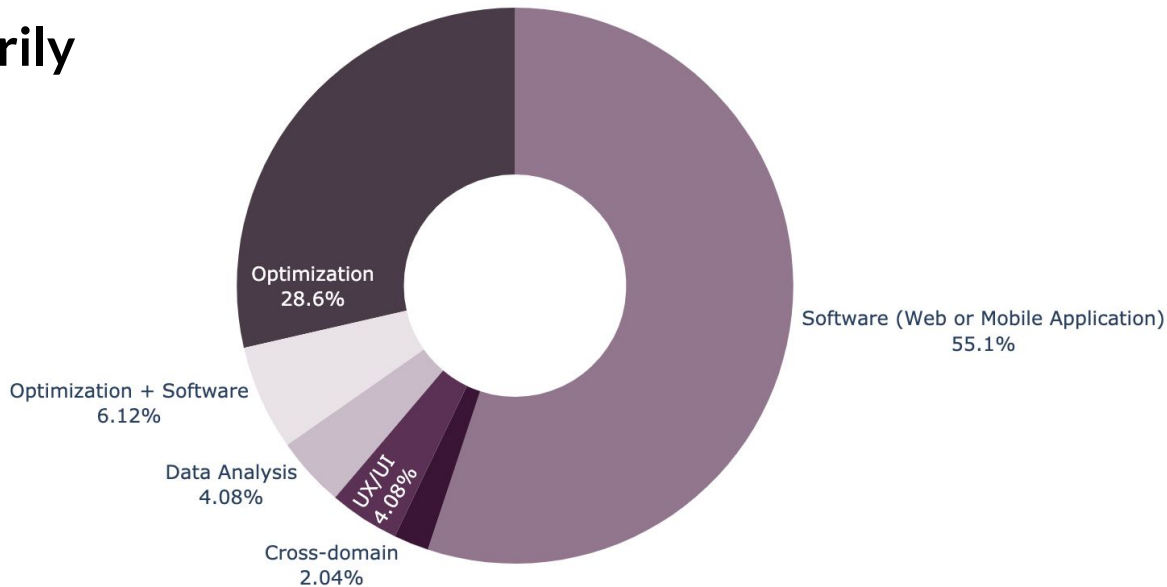
Which domain most accurately describes your FYDP?

Most projects were primarily focused on software or optimization

—

This further supports the claim that interest in software development within our class is strong.

Checkout the [Capstone Design brochure](#) for project details.





Fall 2017 — 2A
Spot the difference



SOCIAL LIFE

A glimpse into life outside of
CPH 3681.

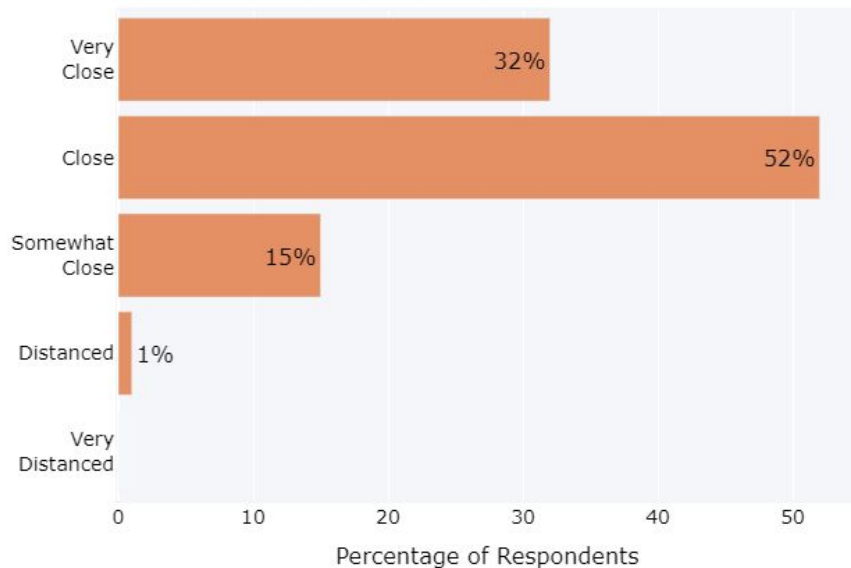
Friendships
Recreation & Leisure
Relationships
Drugs & Alcohol

How close were you with your fellow
MGTE 2021 classmates?

~84%

of us were close or very close.

About **66%** of the class considered a group of classmates to be their main friend group at university.



Did you join any school clubs and if not, do you regret that decision?

~78%

joined at least one club or student lead team

- ~ **12%** of respondents joined one club,
- ~ **35%** of respondents joined 2 clubs,
- ~ **31%** joined more than 3 clubs, and
- ~ **25%** of those that did not join a club regretted it.

UW Blueprint
Management Consulting Club
 Dragon Boat Club
 EWB Midnight Sun
 Sustainable Campus Initiative
 EngPlay **UWENDECA**
 WiE **WiSTEM**
IISE Engineering Orientation
 EntSoc Coffee N' Code
 EngSoc
 Industry 4.0

Did you drink in university?

~86%

decided to have an alcoholic beverage.

Cheers to the 14 percent of teetotalers that chose to keep a clear head. It appears as if the rest of us prefer to keep our relationship with whiskey on the rocks.

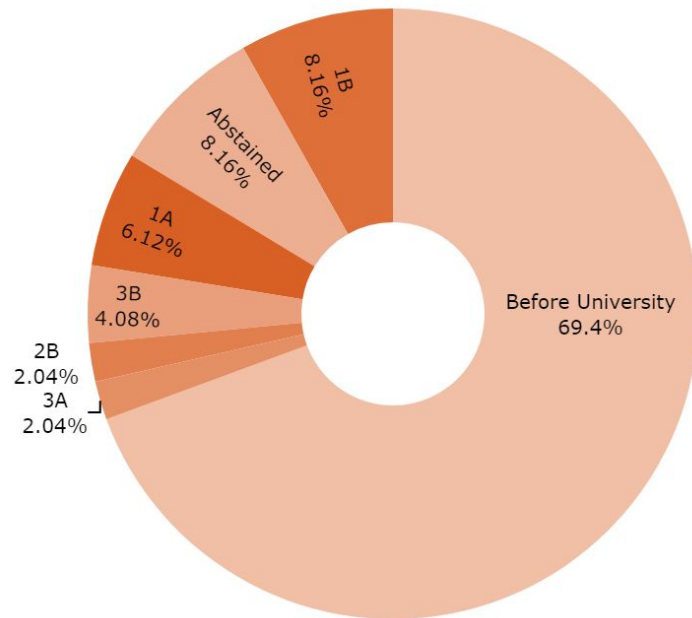


When did you have your first sip of alcohol?

~68%

of us had tried alcohol prior to first year

About **21%** of people had their first sip somewhere along the way during university.
About **5%** of people waited until 3B *drove them to drink*. The remainder decided not to answer.

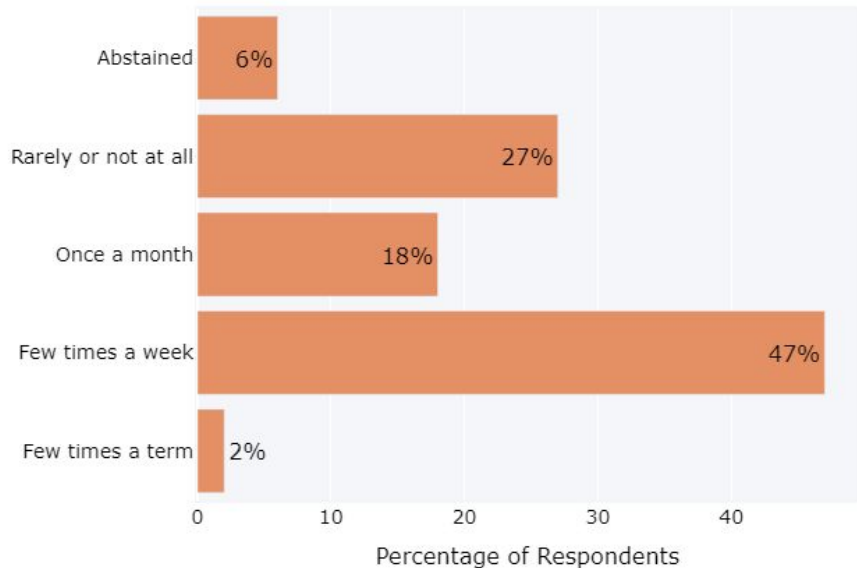


How often did you drink?

~47%

drank at least a few times a week.

The second majority of people (~29%) opted to drink rarely or not at all.

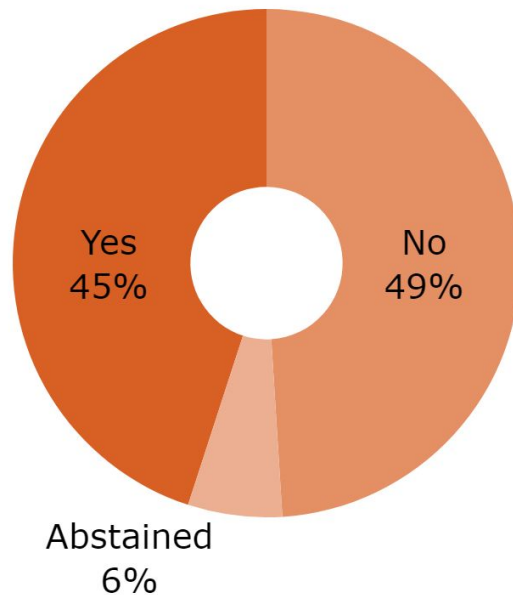


Did you ever do something you regretted while drinking?

~45%

made a mistake while under the influence of alcohol.

20% of respondents also felt that they had been pressured to try either alcohol or drugs in the past.

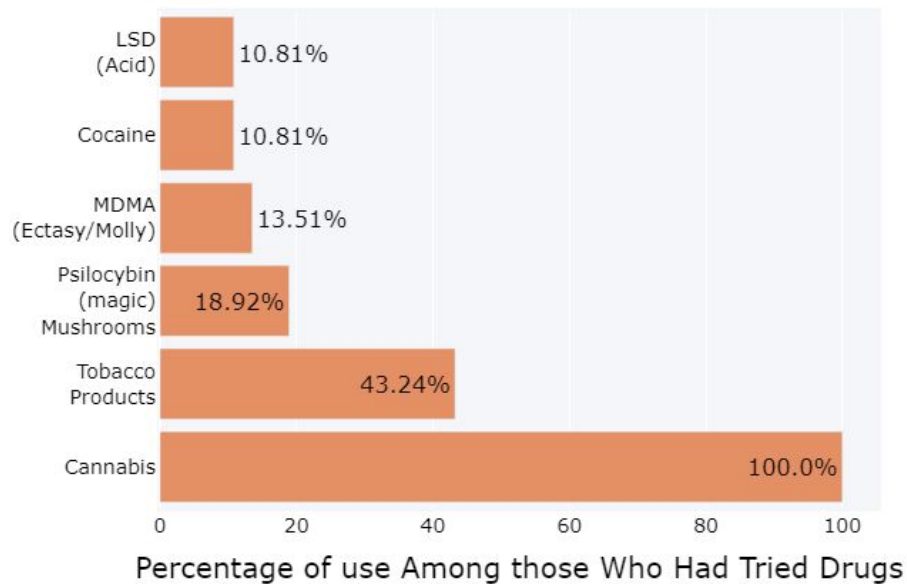


If you've used drugs at least once, what did you try?

~24%

avoided drugs completely.

100% of the respondents that had tried drugs at least once, opted for use of recreational cannabis.



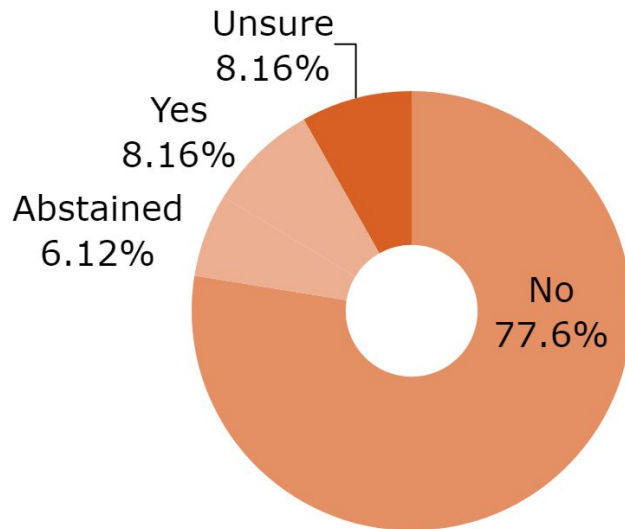
(Caffeine was not included in this survey on drugs)

Do you regret consuming drugs or alcohol?

~16%

of respondents thought they did or might regret substance use.

As an additional note, an overwhelming majority did not report ever feeling addicted to or like they relied on a substance.



How long was your longest romantic relationship?

~18%

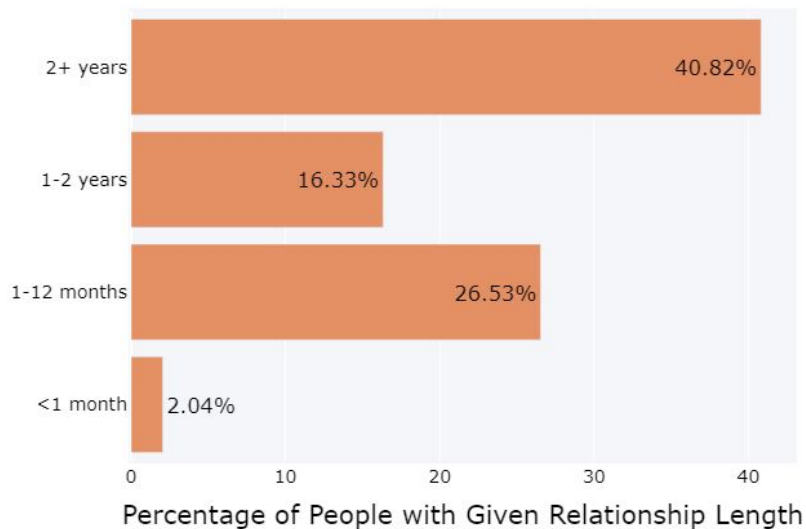


**of respondents pursued a relationship
for the entire duration of university.**

~80% pursued at least one romantic relationship in university.

~14% of respondents had a romantic relationship prior to University, but never during.

~59% of people in relationships for longer than 1 year listed relationships as a source of anxiety or depression.



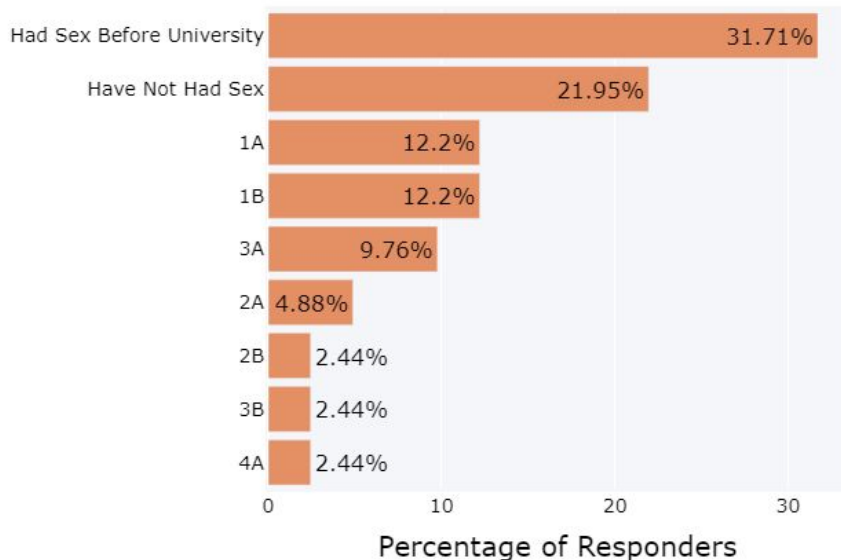
When did you first have sex?

~71%

**found more time to explore during
“A” terms than “B” terms.**

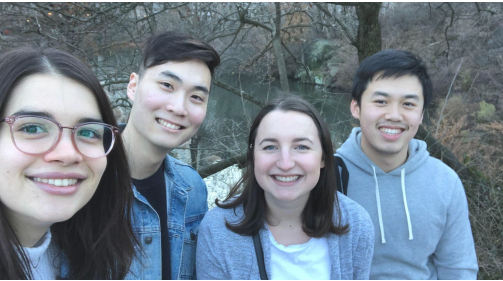
Seeing as “A” terms were typically easier than “B” terms, we feel this makes sense.

We also see that first years are frisky.



Summer 2018 — 2B
Suns out, guns out.



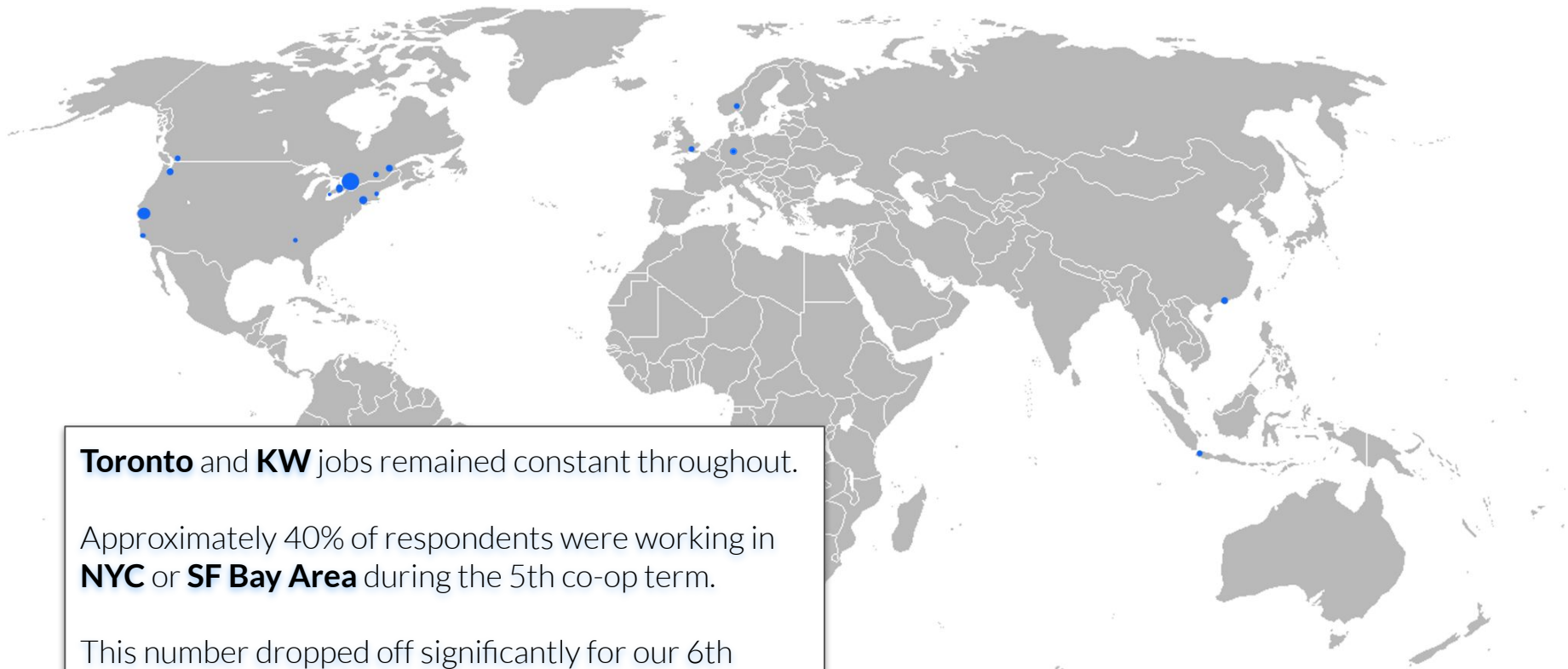


CO-OP

Working hard,
or hardly working?

Location
Job Titles
Evaluations
Salaries
Hours

What city were your co-op terms in?

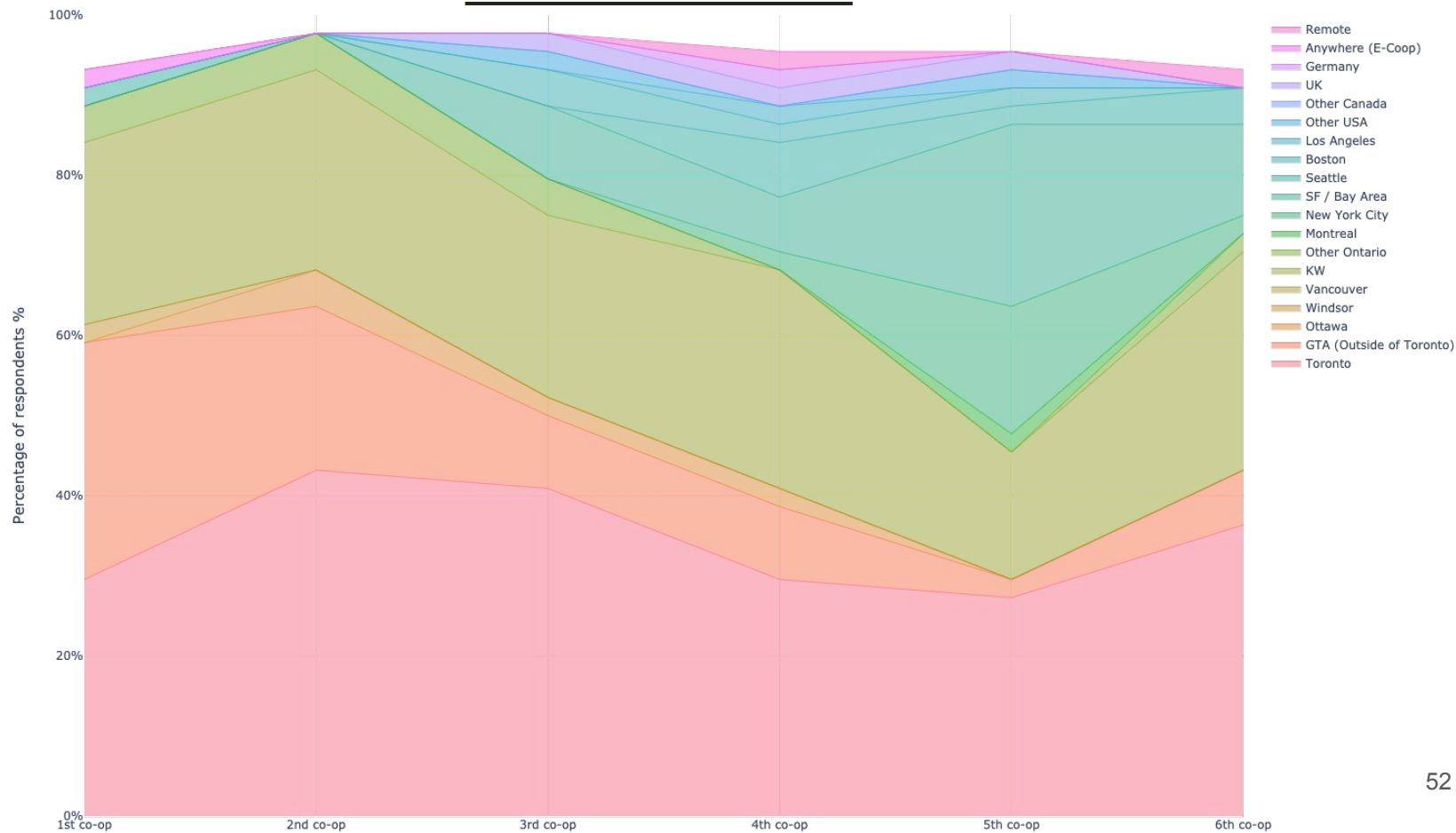


Toronto and **KW** jobs remained constant throughout.

Approximately 40% of respondents were working in **NYC** or **SF Bay Area** during the 5th co-op term.

This number dropped off significantly for our 6th co-op which was a result of the pandemic.

Co-op location progression

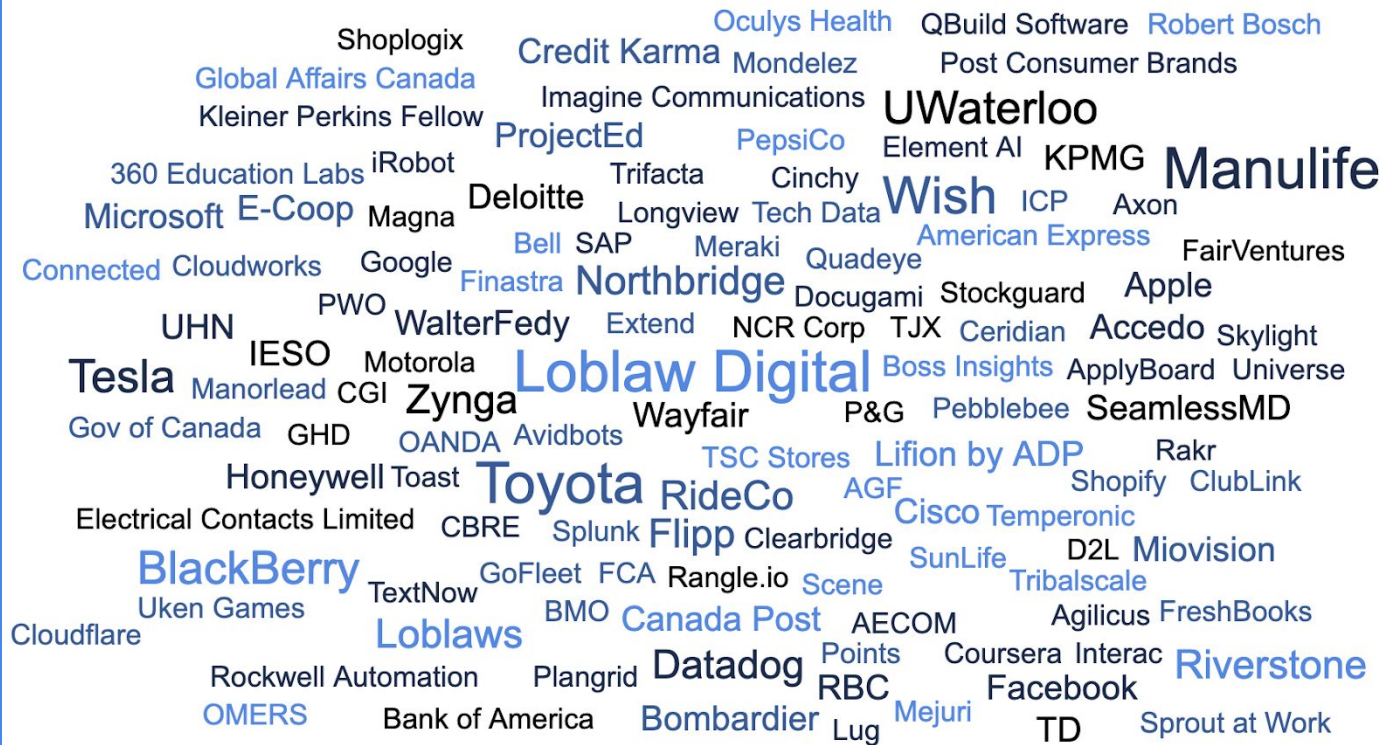


What were your job titles on co-op?

On a general note, many of us started off in Analysts or QA roles in our first few co-ops and ended up in PM or SWE roles in our last co-op term.



What companies did you work for?

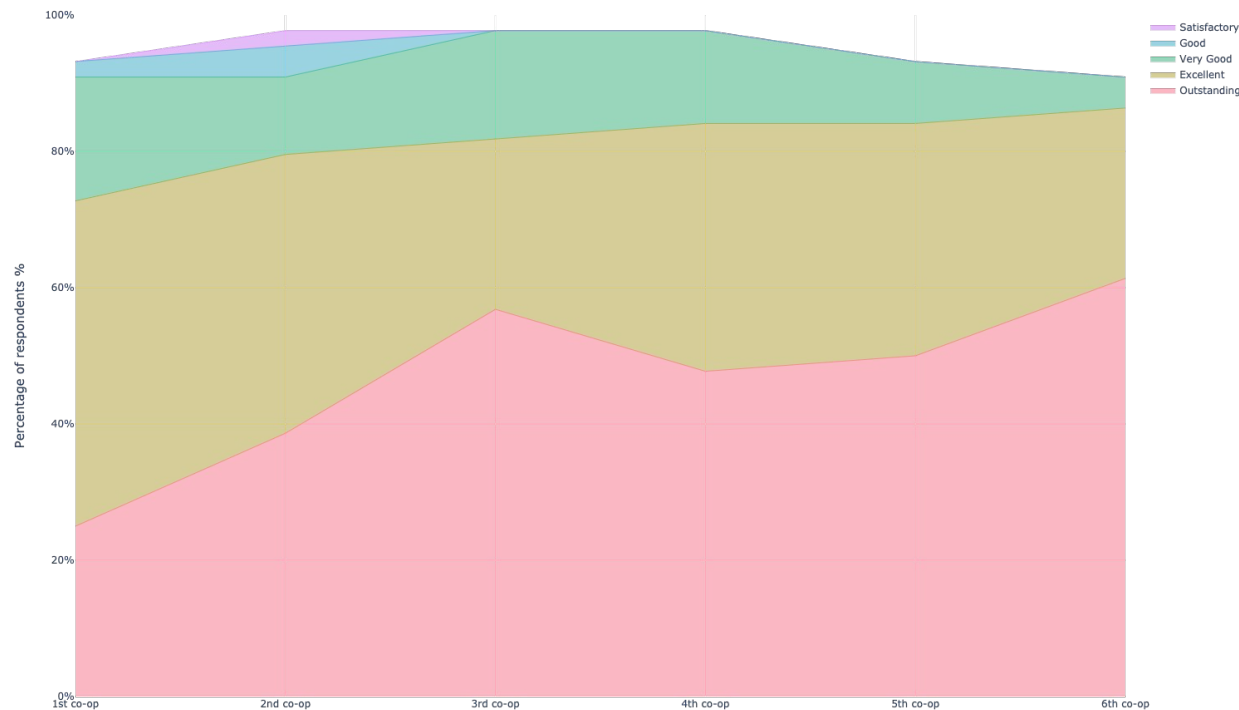


~40%

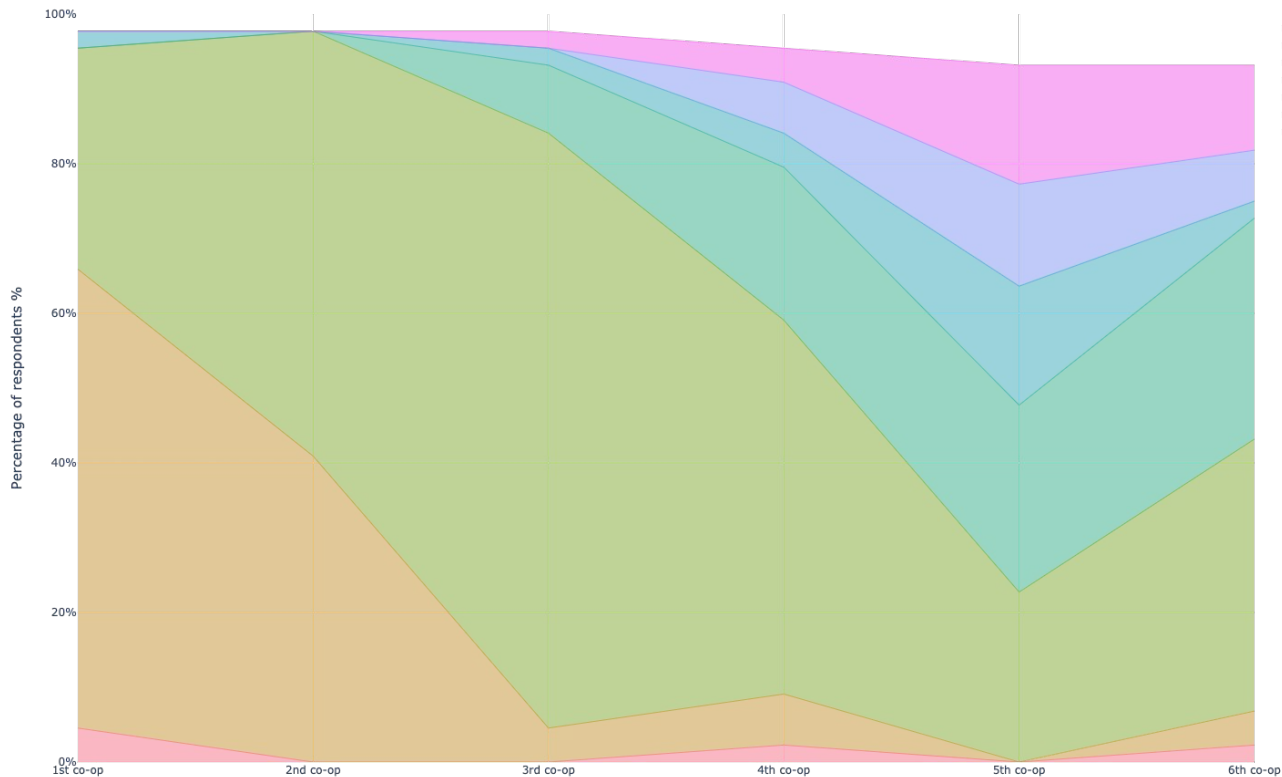
of respondents have done at least one co-op term at either Loblaw Digital, Manulife or Toyota. We must be developing quite the reputation!

Co-op Evaluations

The percentage of respondents that got either an excellent or outstanding steadily rose from **~72%** in our first co-op to **~87%** in our last co-op



Co-op Salaries



Salaries steadily increased from the 1st to the 5th co-op term, before taking a hit in the 6th.

This is most likely due to the pandemic and further explored in the COVID-19 section.

Winter 2019 — 3A

Welcome to CPH - our second home.





HEALTH

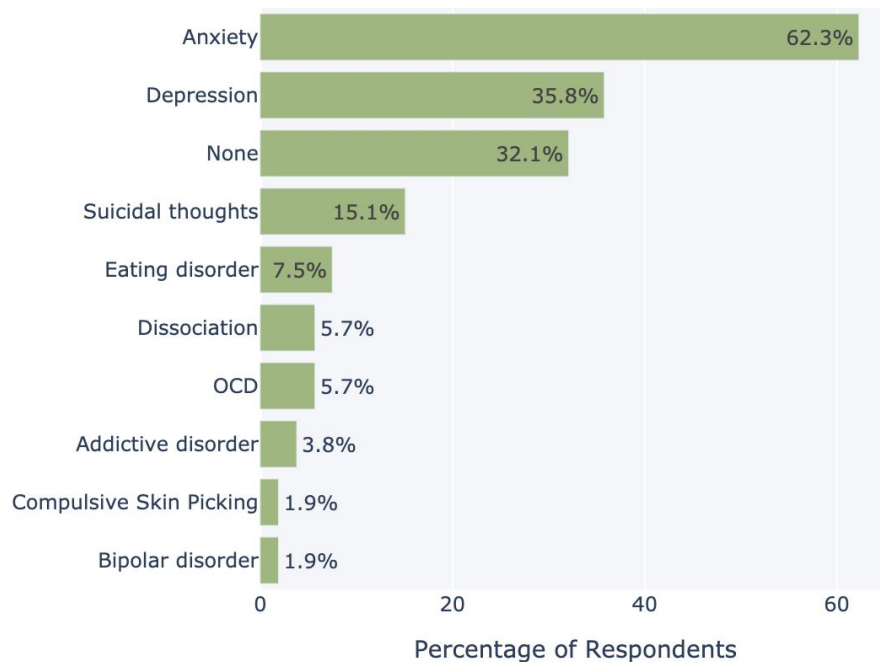
Most of us prefer being outside over class

Mental Health
Physical Activity

Have you experienced mental health concerns?

~70% of respondents reported experiencing a mental health concern throughout university.

Anxiety was the most common concern across respondents. **~55%** of respondents reporting anxiety also experienced depression or suicidal thoughts.



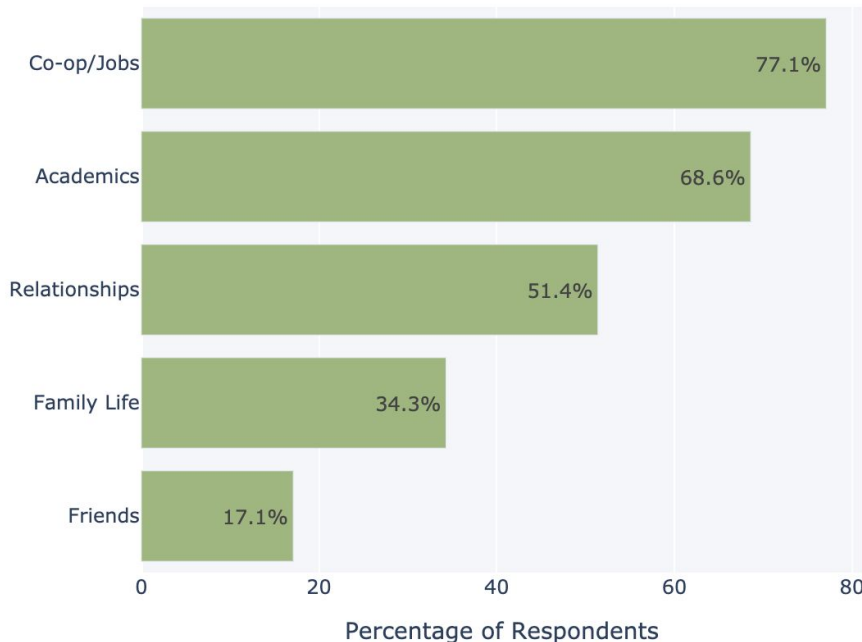
If applicable, what were the sources of
anxiety and/or depression?

~77%

**felt co-op / jobs poorly impacted
their mental health at times.**

Interview season, continuous round, long hours
and job competition caught up to us.

Homesickness, a lack of sunlight in the RCH
basement and low serotonin levels didn't help
either.

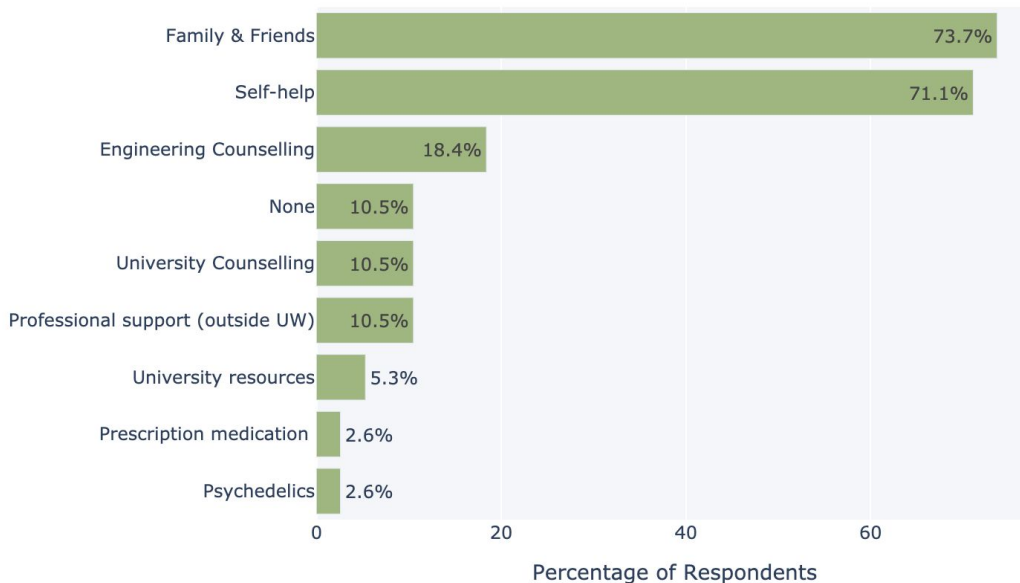


Have you sought out forms of mental health support ?

~74%

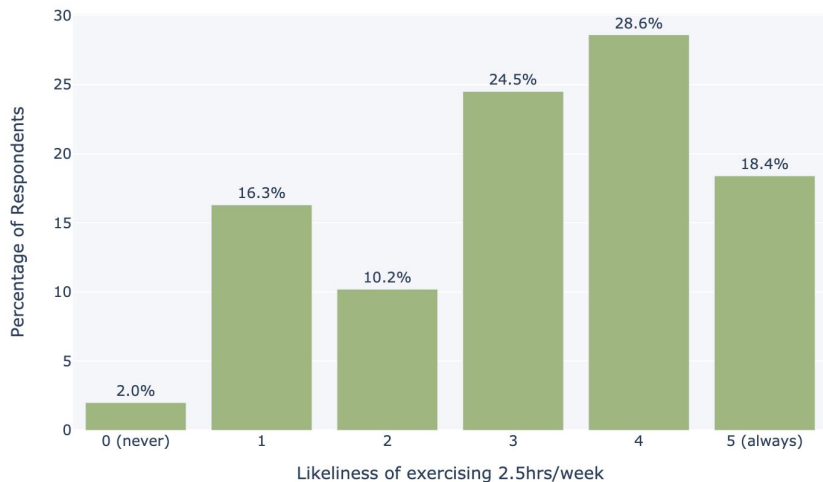
of respondents with
concerns reached out to
family & friends.

Only ~11% of respondents reporting
mental health concerns chose not to seek
out any support.

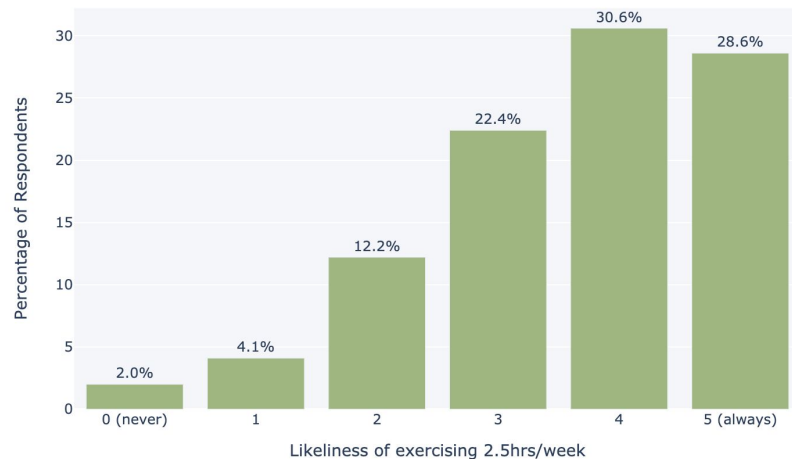


On average how often did you get at least 2.5 hours of physical activity per week?

Academic terms

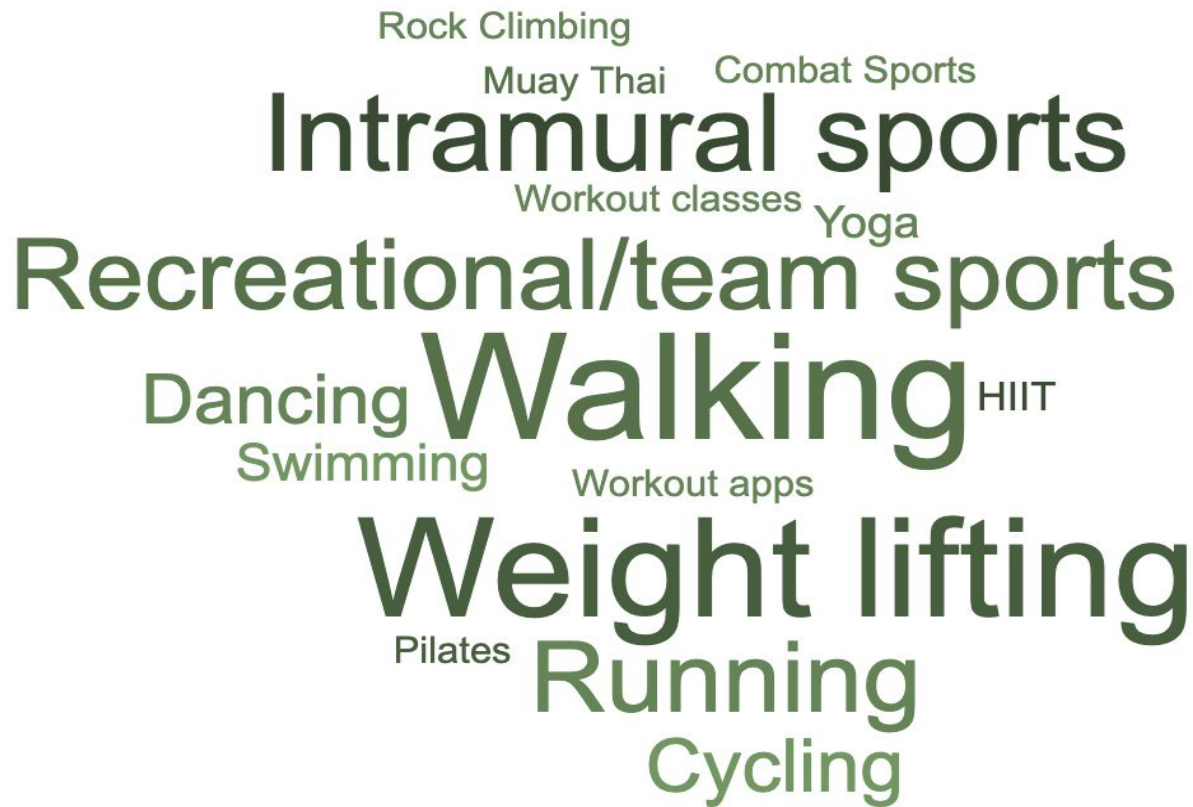


Co-op terms



- ~**37%** of us found more time to exercise on co-op terms compared to academic terms.
- ~**8%** experienced the opposite, noting they were less likely to exercise on co-op terms.
- ~**41%** of us responded in the 4 to 5 range regardless of the term.

What are your favourite ways to exercise?



Walking & Weight lifting were the most popular ways we liked to keep moving. Intramurals were a close third.



C^oVID-19

How the pandemic hit, online
learning & silver linings

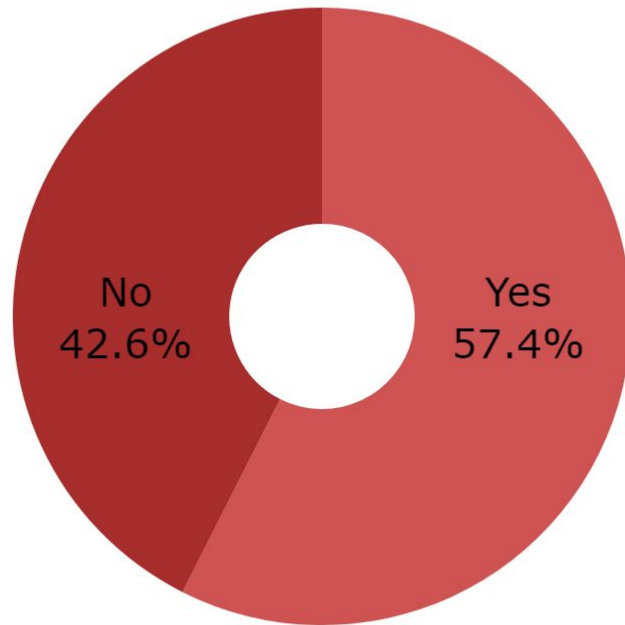
Did you move to Waterloo in 4A or 4B?

Most of our class returned to Waterloo at some point in our final year.



An overwhelming majority of those who chose to return to Waterloo did so to live with friends.

Family (16%), saving money (10%) and COVID-19 restrictions (8%) were the top 3 reasons some individuals preferred not to move back to Waterloo in their final terms.



How would you rate your experience during 4A/4B academic terms in comparison to an in-person term?

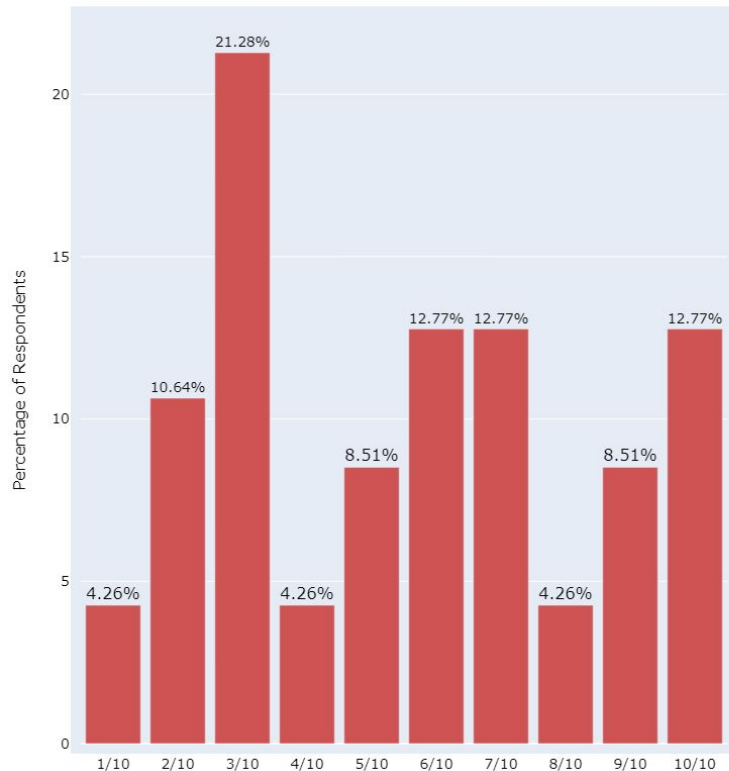
~49%

rated their 4A/4B terms negatively.

While we saw that the move to Waterloo was largely driven by friends, we did not see any significant impact on the positivity of their experience when compared against students who chose not to move to Waterloo.

An equal amount of people who **did** and **did not** return to Waterloo rated their final term a 3/10.

Respondents were asked to evaluate their overall experience on a scale of 1-10, with '5' being equivalent to an in person term.



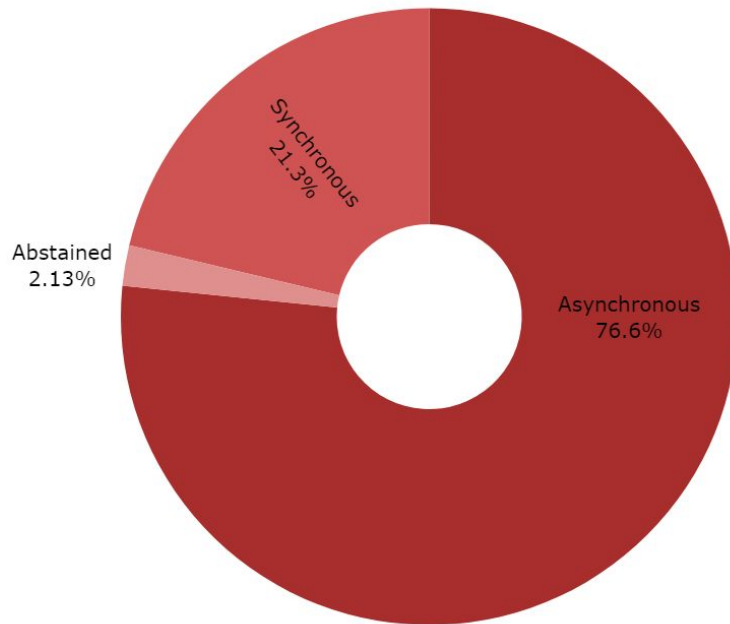
Did you prefer asynchronous or synchronous
remote learning styles?

~77%

preferred asynchronous learning.

However, we already know that not many of us enjoyed sitting through lectures - even when incentives to go were provided.

Many of us preferred asynchronous lectures during remote learning because we were able to manage our own schedules.



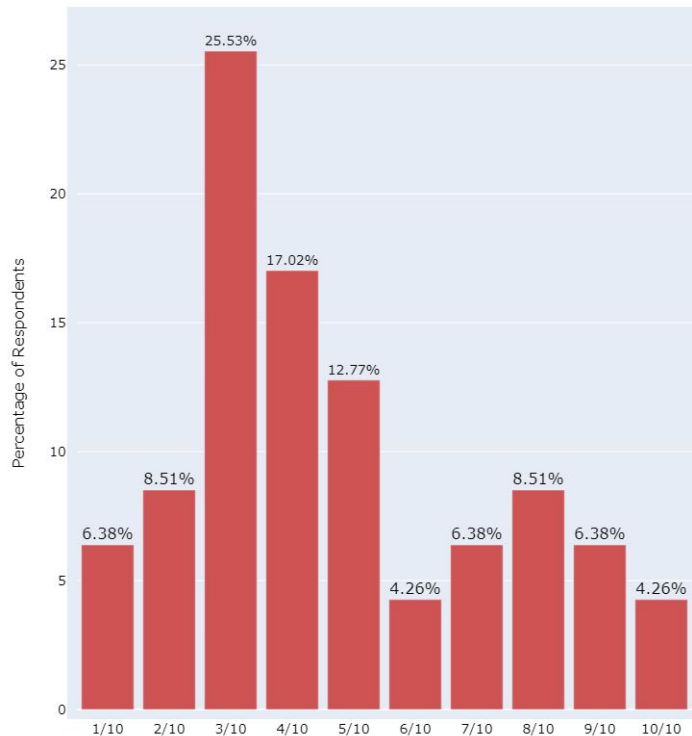
How did your level of engagement in course
and group work change compared to an in-person term?

~57%

experienced a drop in engagement.

A majority of our class noticed their level of engagement in both individual and group work dropped by at least 1 point when compared to an in-person term.

Respondents were asked to evaluate their overall engagement on a scale of 1-10, with '5' being equivalent to an in person term.



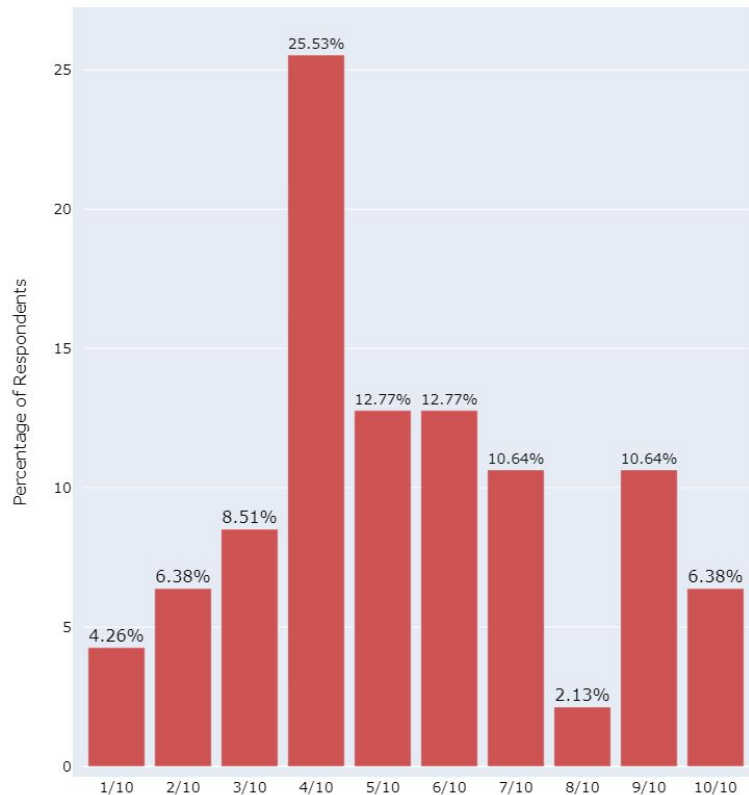
How did your level of understanding in courses
change compared to an in-person term?

~13%

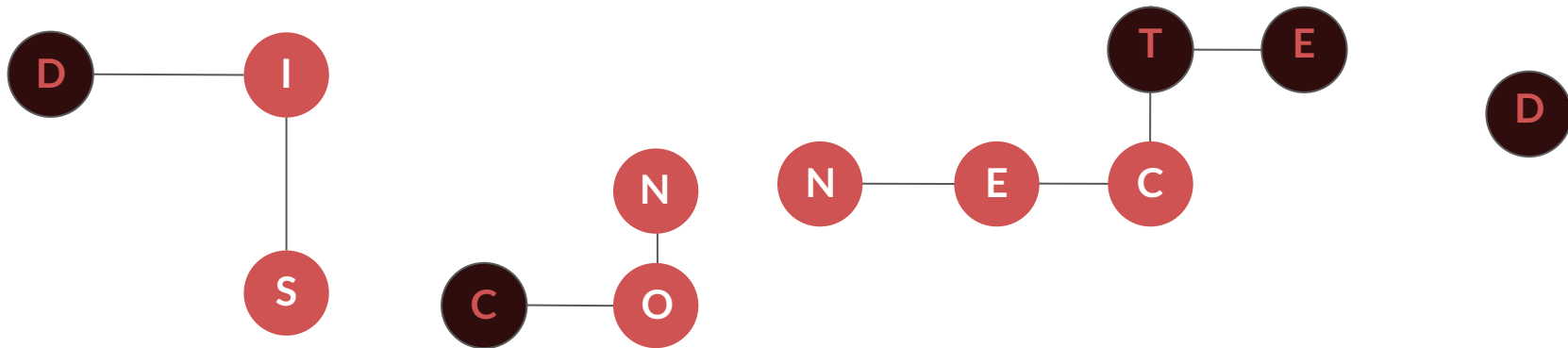
experienced no change in
understanding.

43% of our class benefited from online learning, but **45%** saw a detriment to their course takeaways when compared to an in-person term.

Respondents were asked to evaluate their overall understanding of courses on a scale of 1-10, with '5' being equivalent to an in person term.



How did COVID-19 impact your experience at your final co-op?



was the most prominent feeling recorded during our final co-op.

~**65%** felt **disconnected** from their co-workers during their final co-op.

~**43%** felt like they **settled** for their final co-op to ensure they had a job.

~**41%** experienced a **decrease in productivity** and/or roommate distractions.

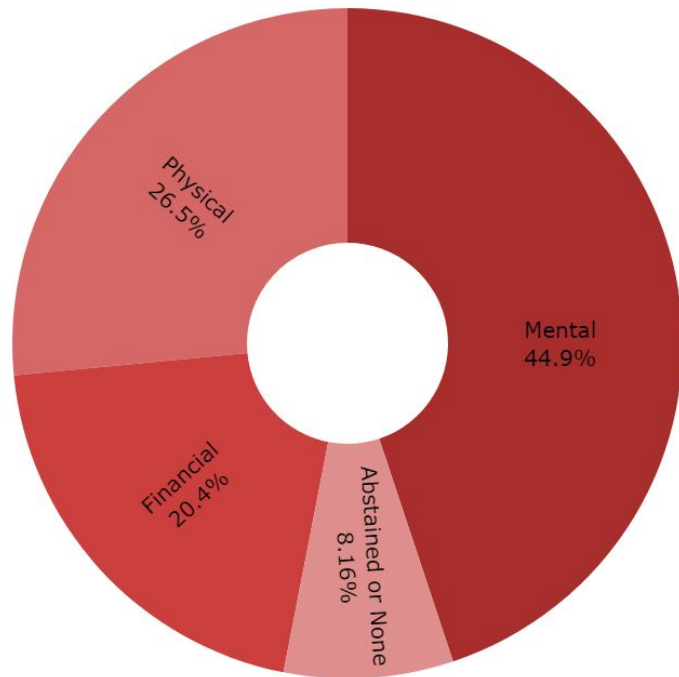
~**29%** experienced either a **cut in salary, learnings, or both**.

An **equal** amount of respondents said their **work/life balance** was good vs poor.

Were you or your family directly impacted by the COVID-19 pandemic?

~45%

**experienced mental health
struggles personally or
within their family.**



If you picked up a new hobby during the pandemic,
tell us what you got up to!



It seems like many of
us re-discovered
reading (beyond our
textbooks) and found
new creative outlets to
get us through
lockdowns.

Describe the last year of University in one word.



After a year of remote learning and all final year events being cancelled or held virtually, it's no surprise that the overwhelming majority felt that final year was a let down.

FUTURE

Where to from here?

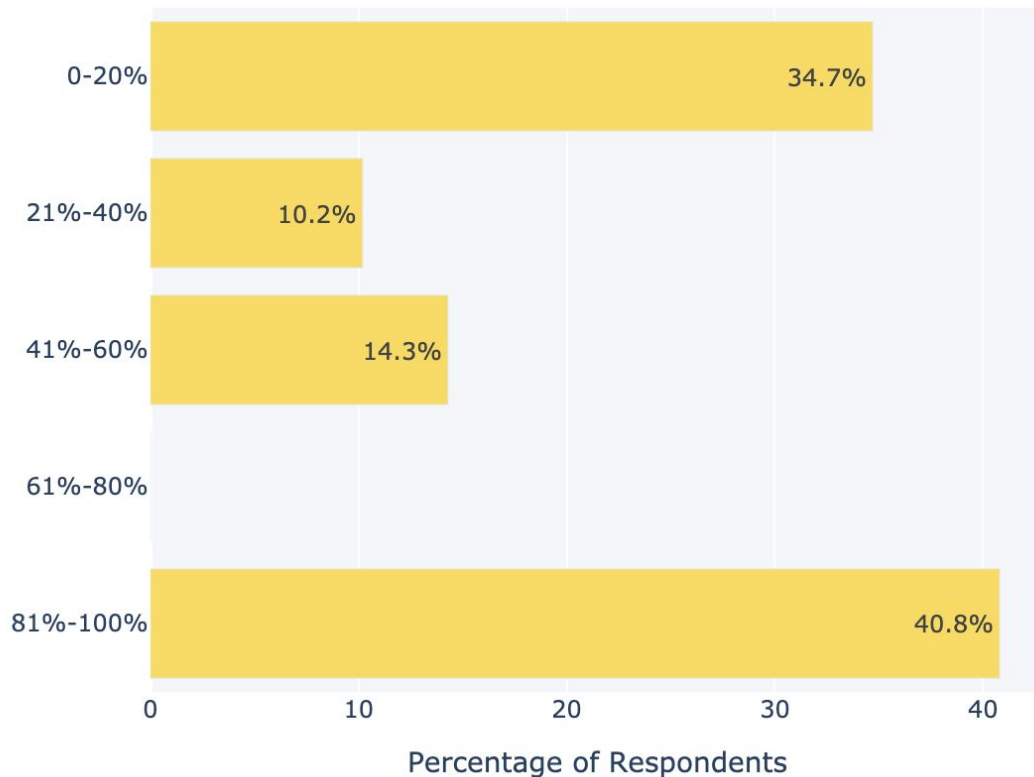
Finances
Next Steps
Reflections



How much of your education was funded by family?

~59%

of our class paid for about
half of their education

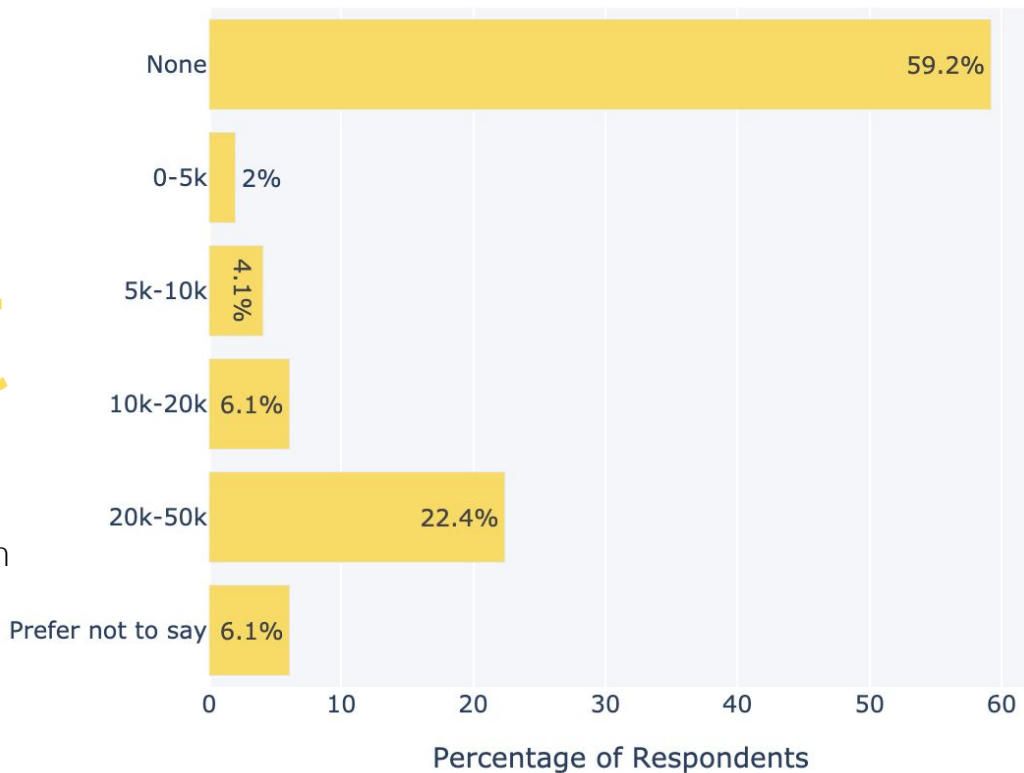


How much debt are you graduating with?

Majority our class is
graduating with

no debt

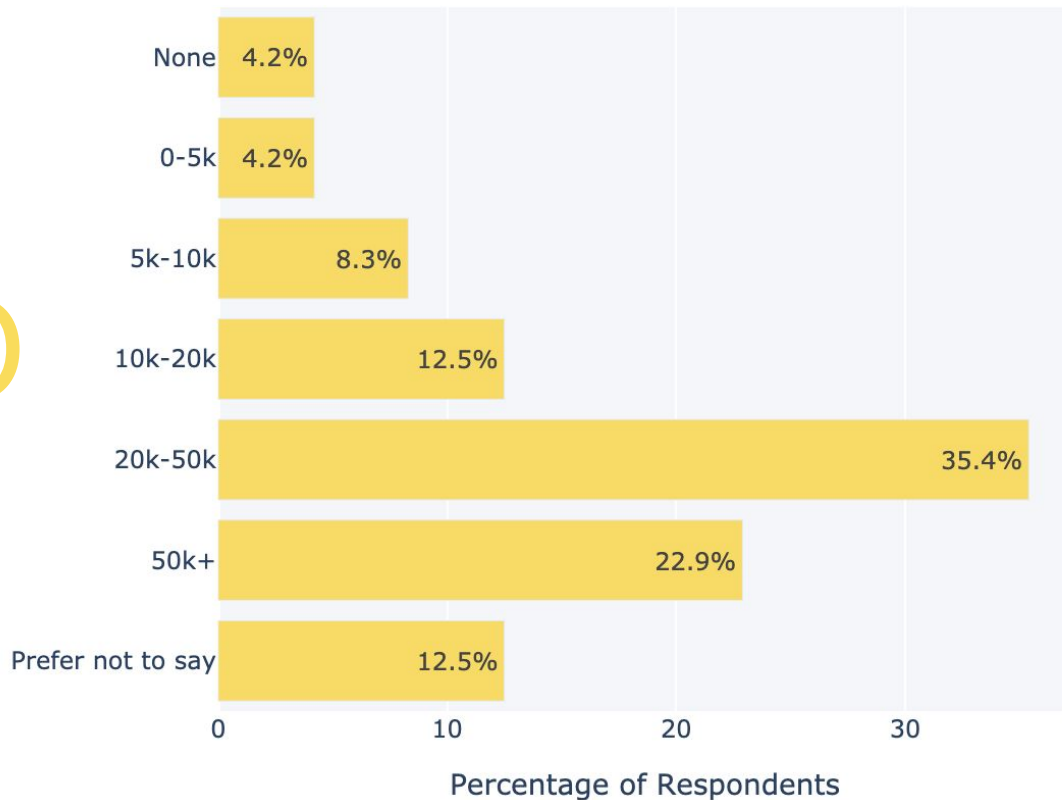
The average amount of debt for a Canadian
graduating with a Bachelor's degree was
\$21,300 in 2015. Thank you co-op!



How much do you have in savings?

~58%

of us are graduating with at least \$20k in savings

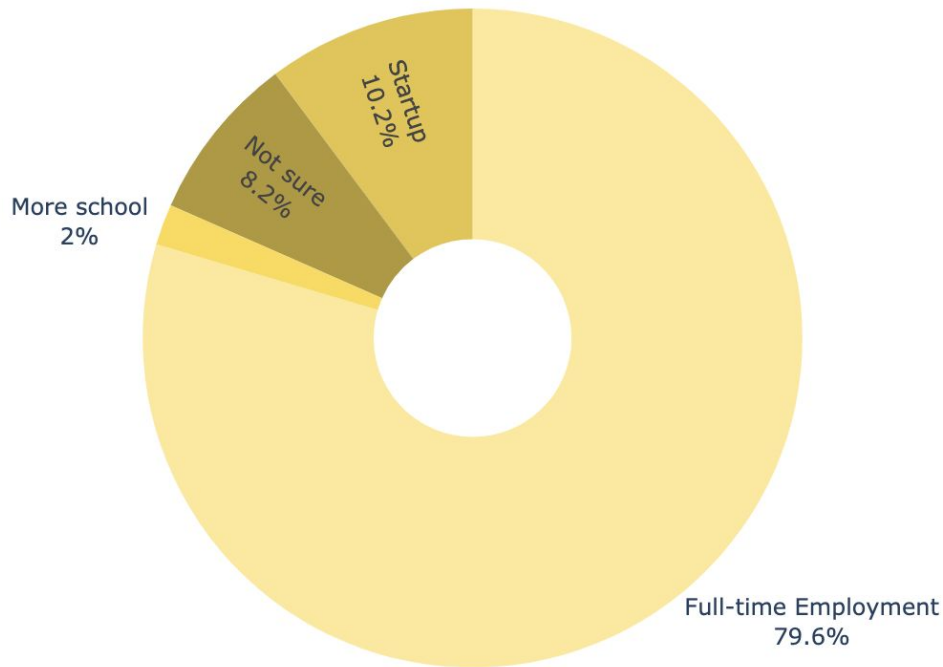


What do you expect to be doing a year from now?

~80%

of us are planning to work
full-time post graduation

10% of us are planning to work on their own
startup *#innovationstartshere!*



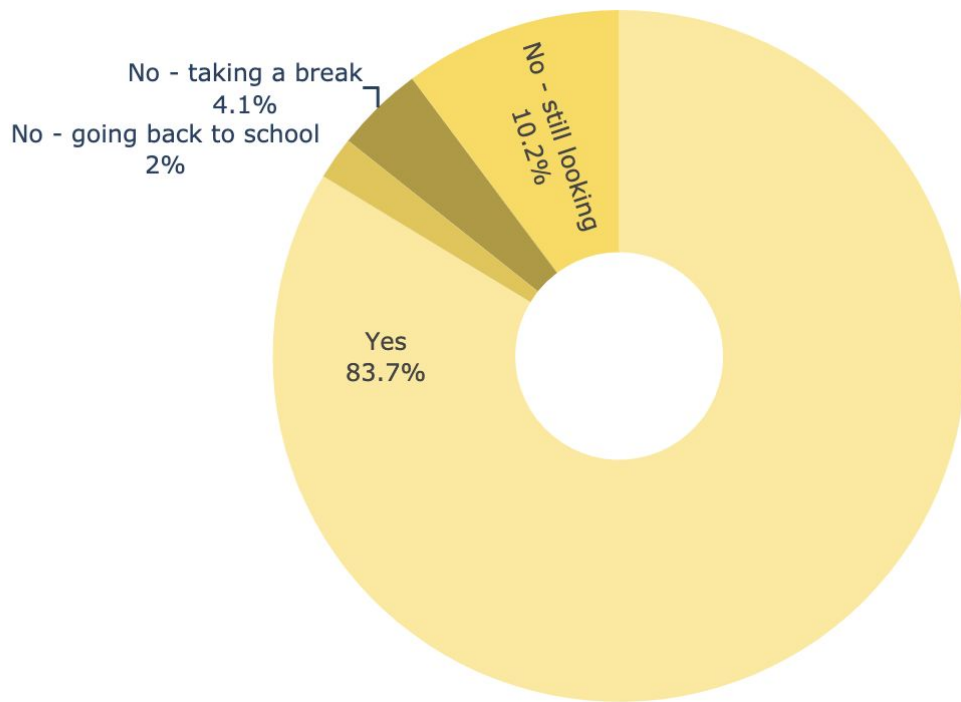
Do you have a full-time job you will be starting in 2021?

As of May 2021,

~84%

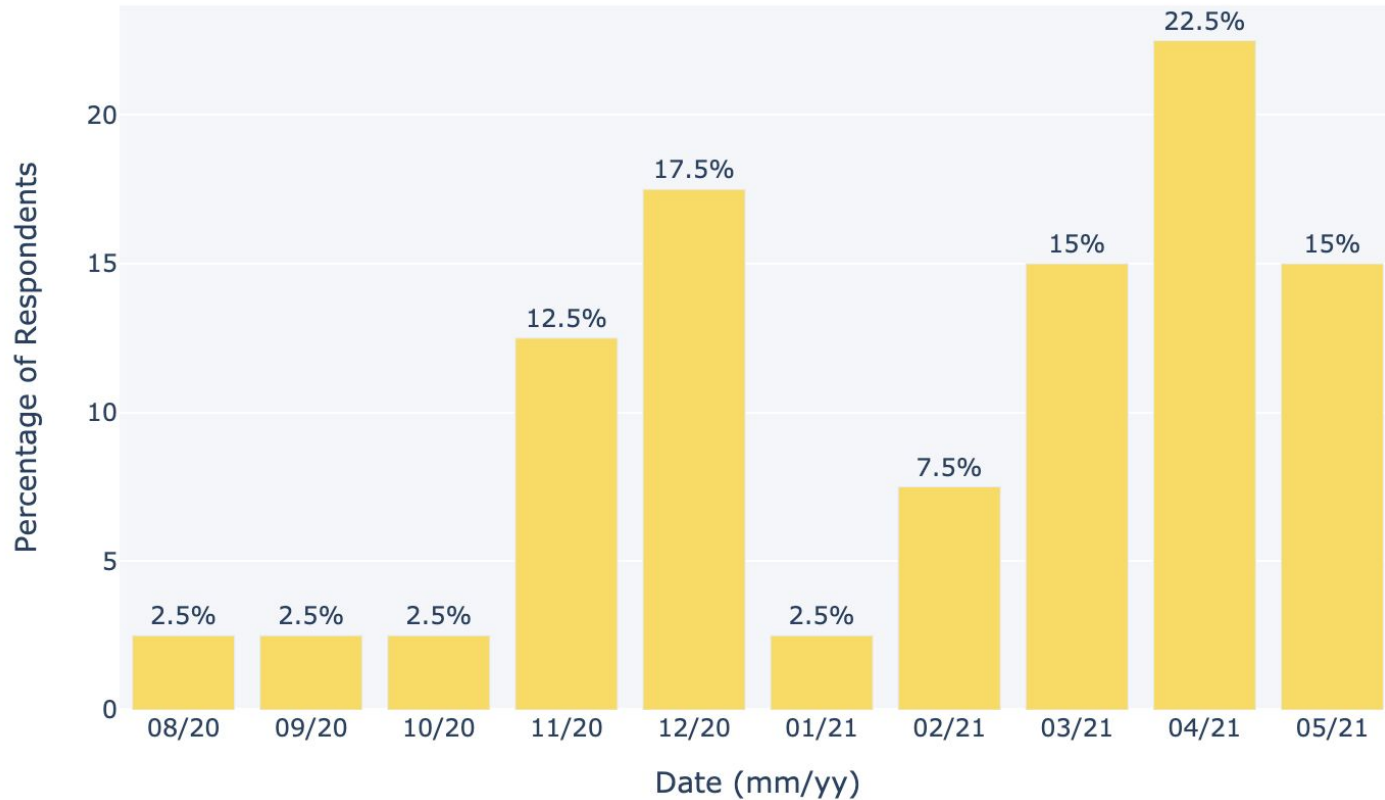
of our class had jobs lined up
post-grad

51% of those with a full-time offer are
returning to a company they interned at.



Note: Sample sizes are small (~40 employed), full-time data trends should not be generalized.

Full-time: When did you receive your full-time offer?



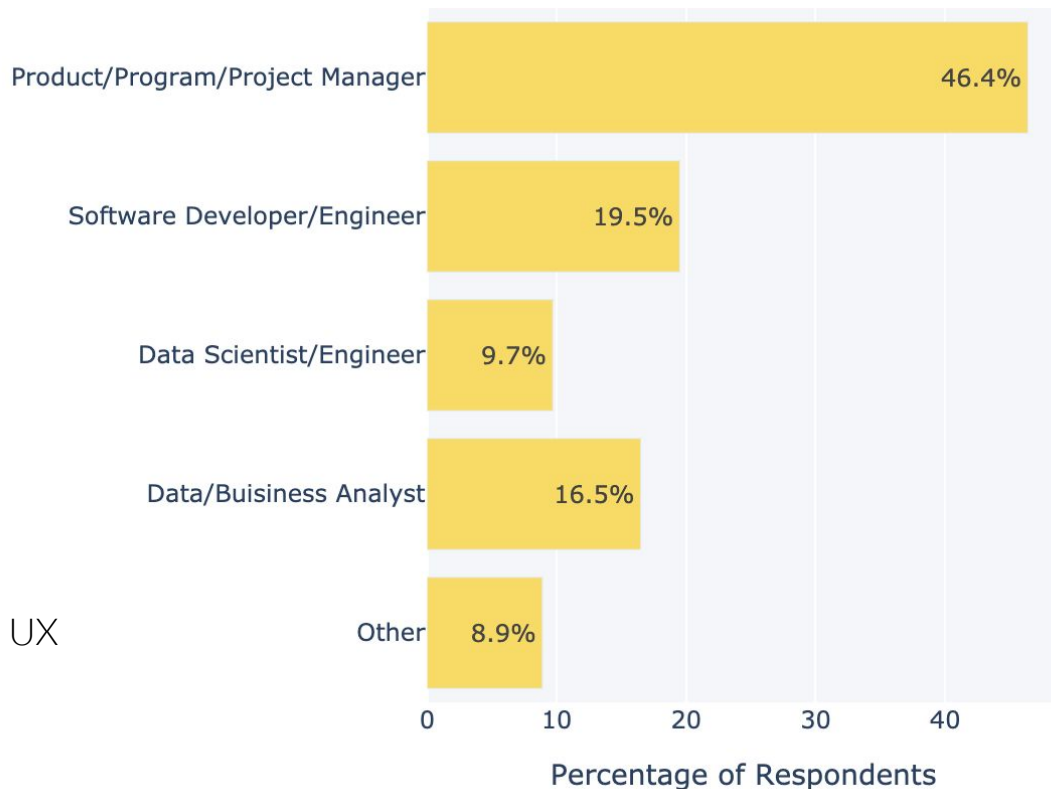
Majority of us received offers towards the end of our 4B semester.

Full-time: What will your job title be?

~37%

of us will be working as
Product Managers

Other job titles include: Consultant,
Operations Researcher, Account Manager, UX
Designer/Researcher

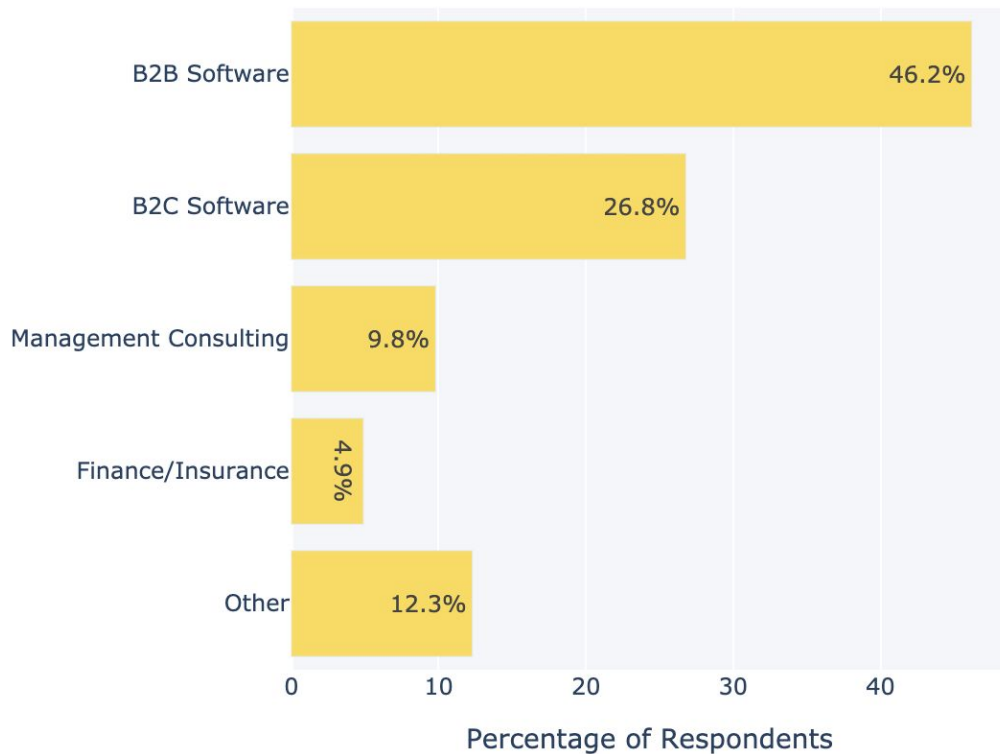


Full-time: What industry will you be working in?

~73%

of us will be working in the software industry

Other industries include: Manufacturing, Education, Hardware



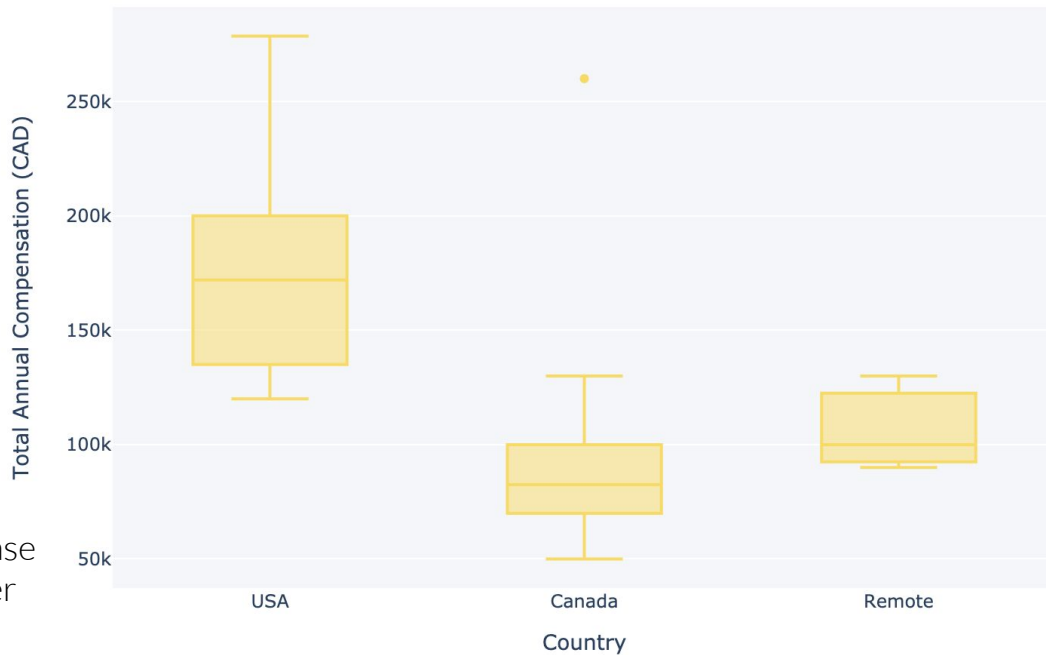
Full-time: What is your total annual compensation?

\$124K

was the average total annual compensation in CAD

—

Total annual compensation package includes a base salary, an equity package that generally vests over 4 years and a signing bonus.



Full-time: How much equity did you receive?

~92%

of those working in the USA received equity packages

~36%

of those working in Canada received equity packages



The median equity package was higher for those working in Canada.

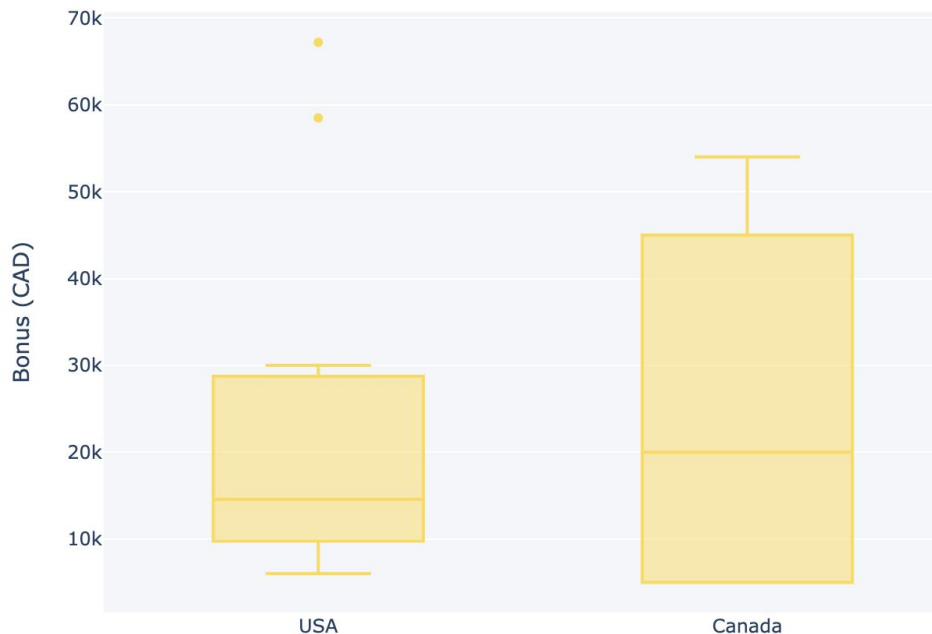
Full-time: How much signing bonus did you receive?

~55%

of those working in the USA received signing bonuses

~67%

of those working in Canada received signing bonuses



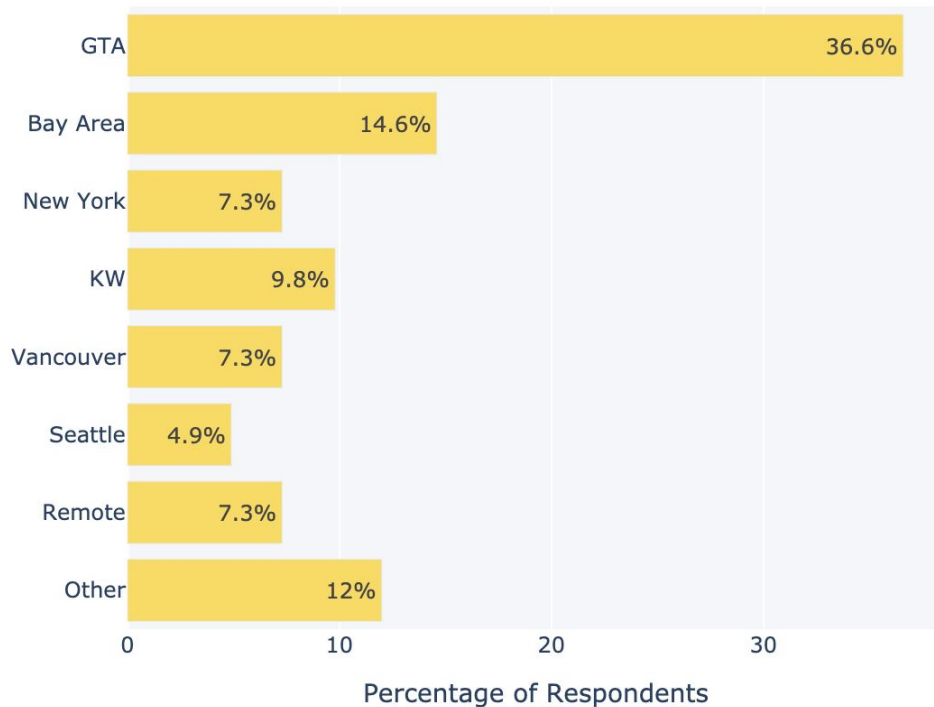
The median signing bonus was higher for those working in Canada

Full-time: Where are you working?

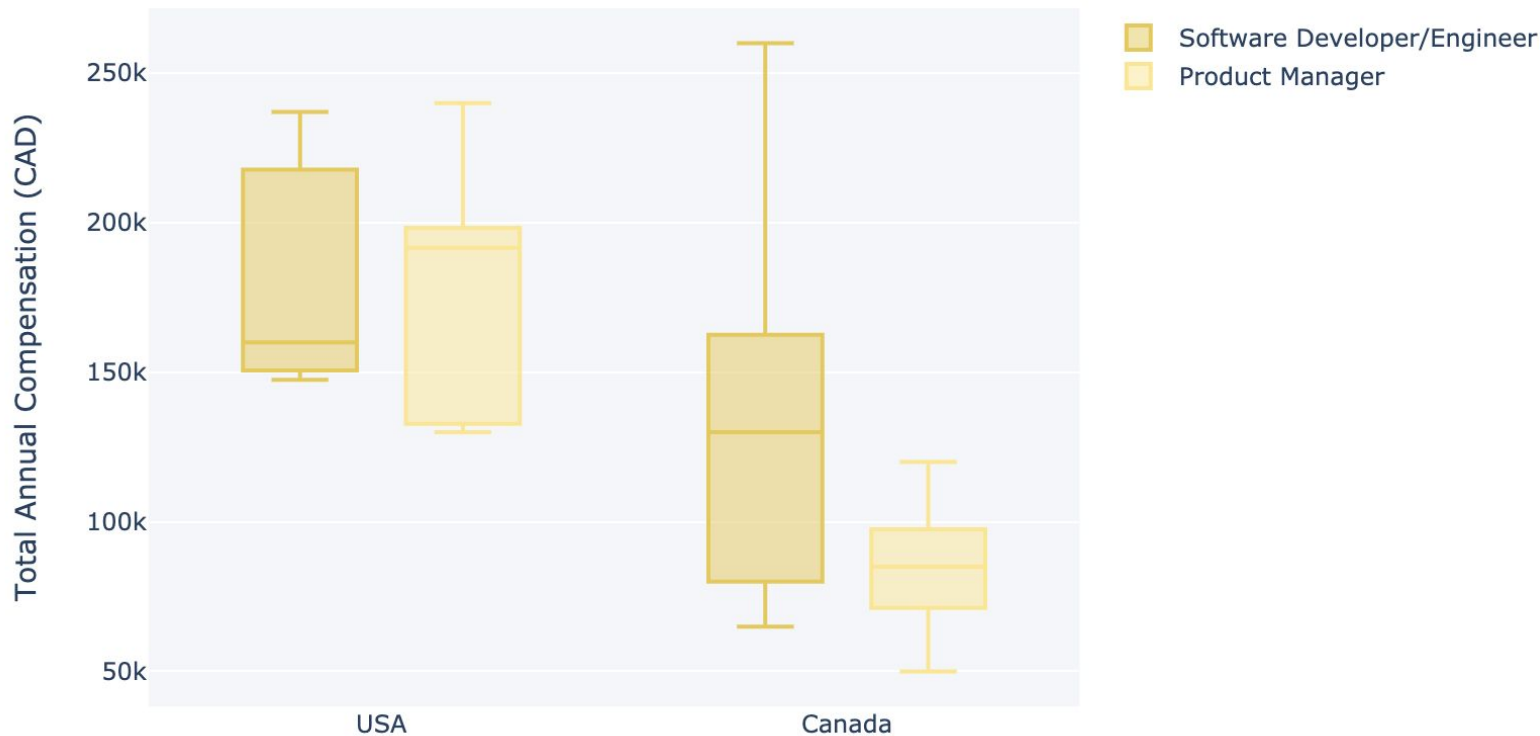
~53%

of us have secured a full-time position in our home towns

Other cities include: Montreal, Hong Kong, Boston, Austin.

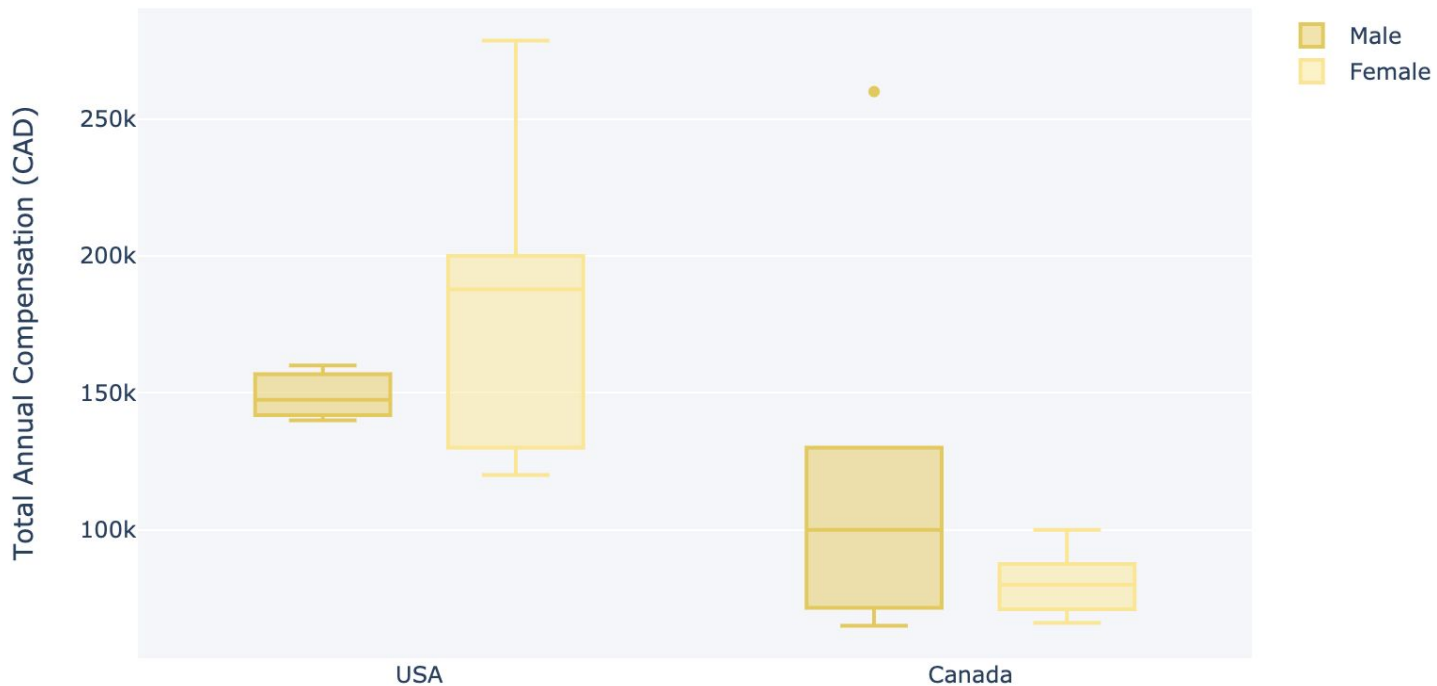


Full-time: Job Title Compensation Comparison



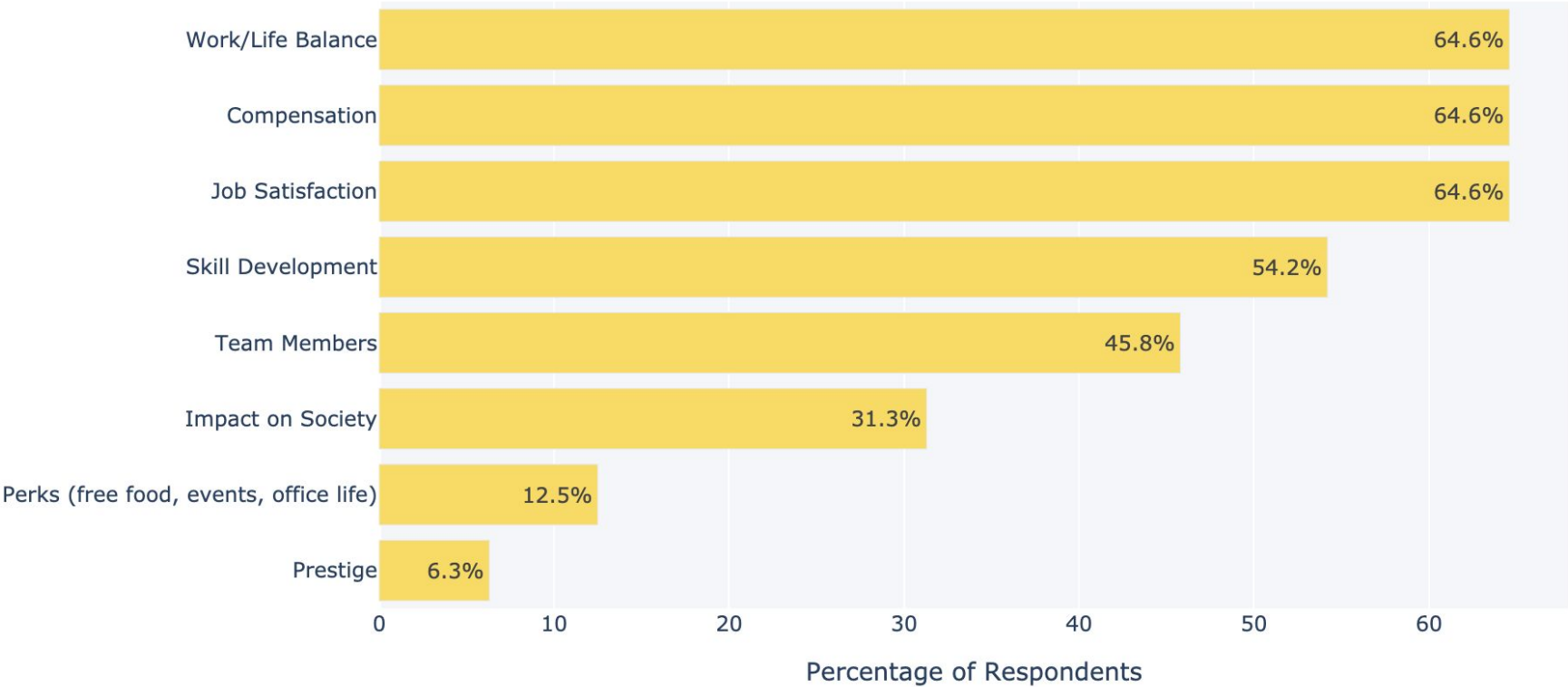
In taking a look at the two most popular job titles in the class, on average PMs working in the US have a higher compensation than that of SWEs, however the reverse is true for those in Canada.

Full-time: Gender Compensation Comparison

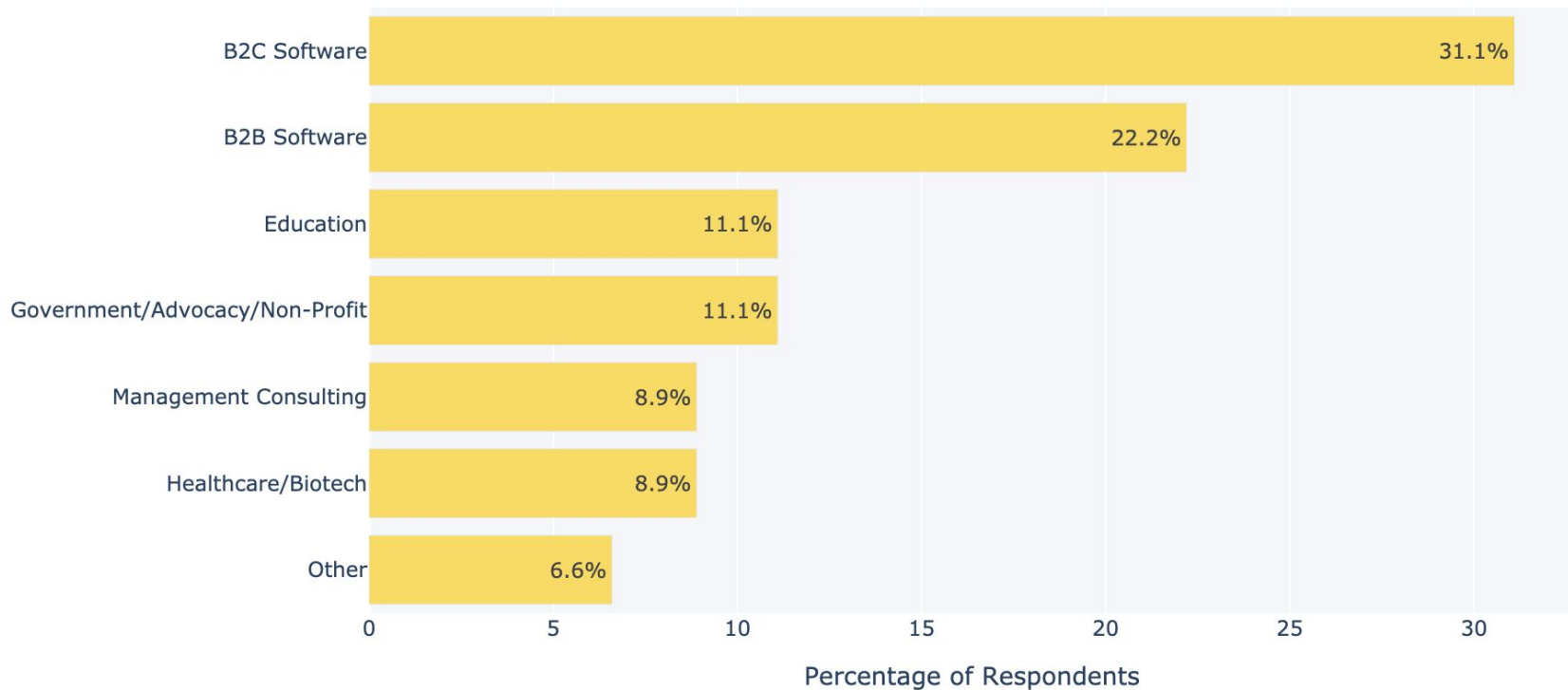


On average, females working in the US have a higher compensation than males, however the reverse is true for those in Canada. This is likely attributed to the fact that majority of PMs are female and majority of SWE are male in our cohort, thus these trends reflect those of the previous slide.

Career: What do you care about most?



Career: Which industry do you hope to work in?



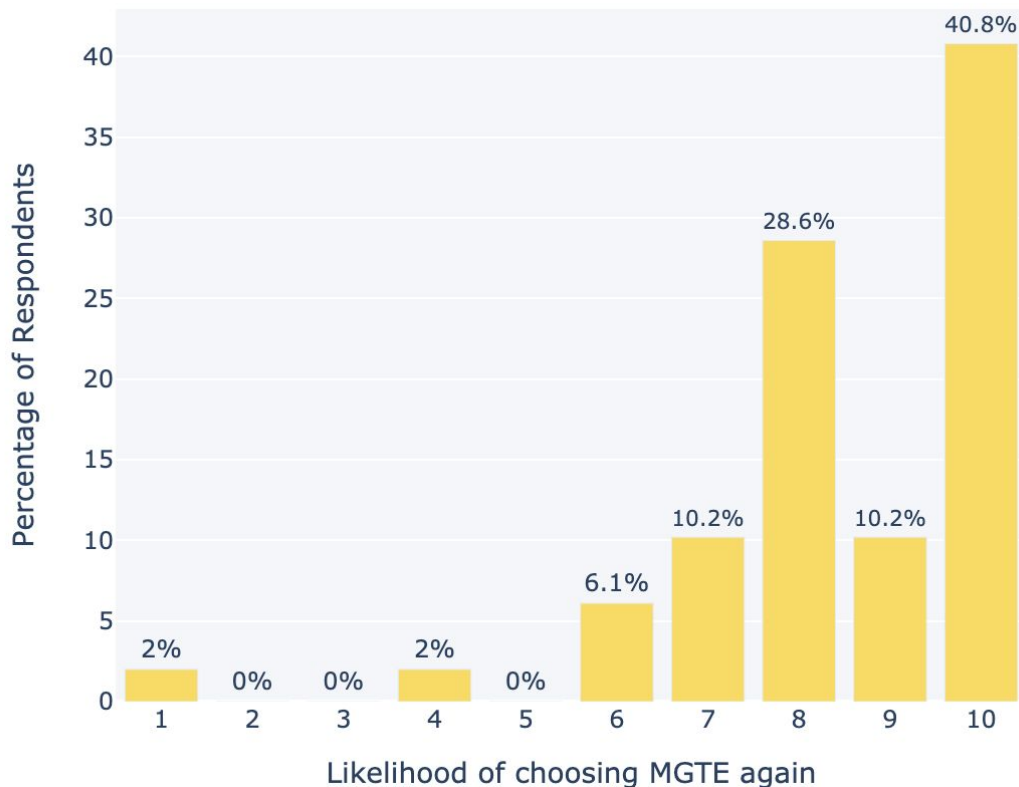
Many of us hope to transition into industries with some form of **social impact**.

Reflection: How likely are you to choose MGTE again?

8.5

**was the average certainty
of selecting MGTE again**

*Respondents were asked to evaluate on a scale of 1-10,
with 1=not at all and 10= for sure*

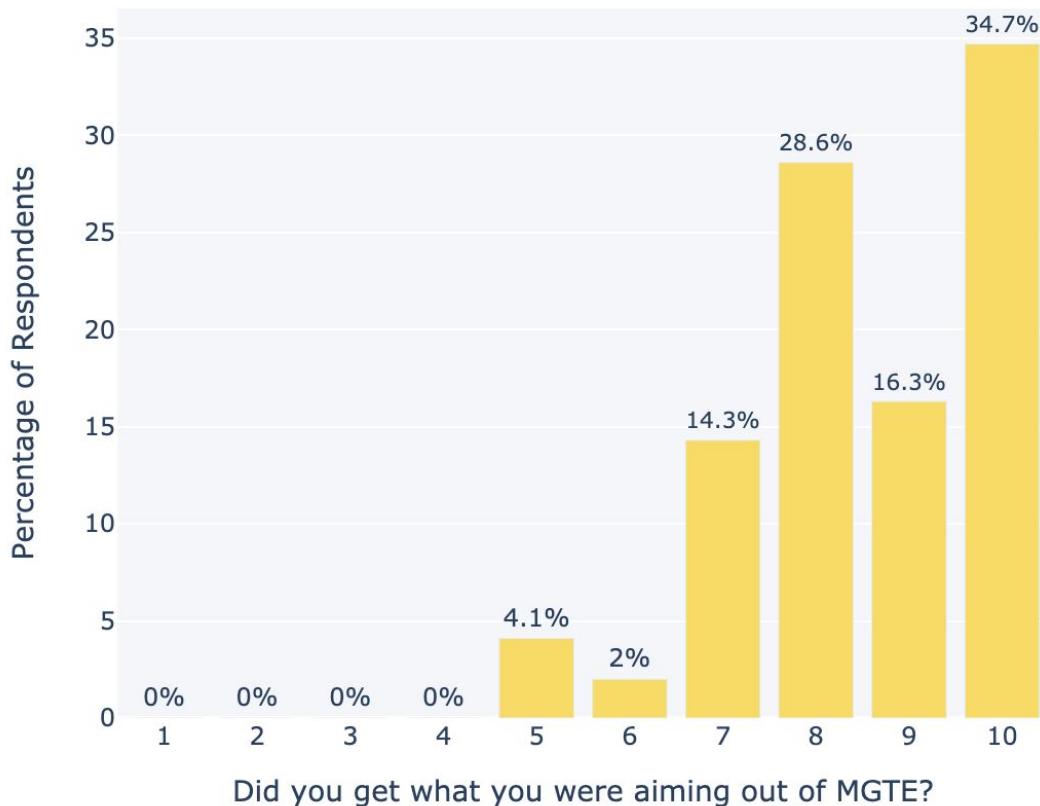


Reflection: Did you get what you were aiming for out of MGTE?

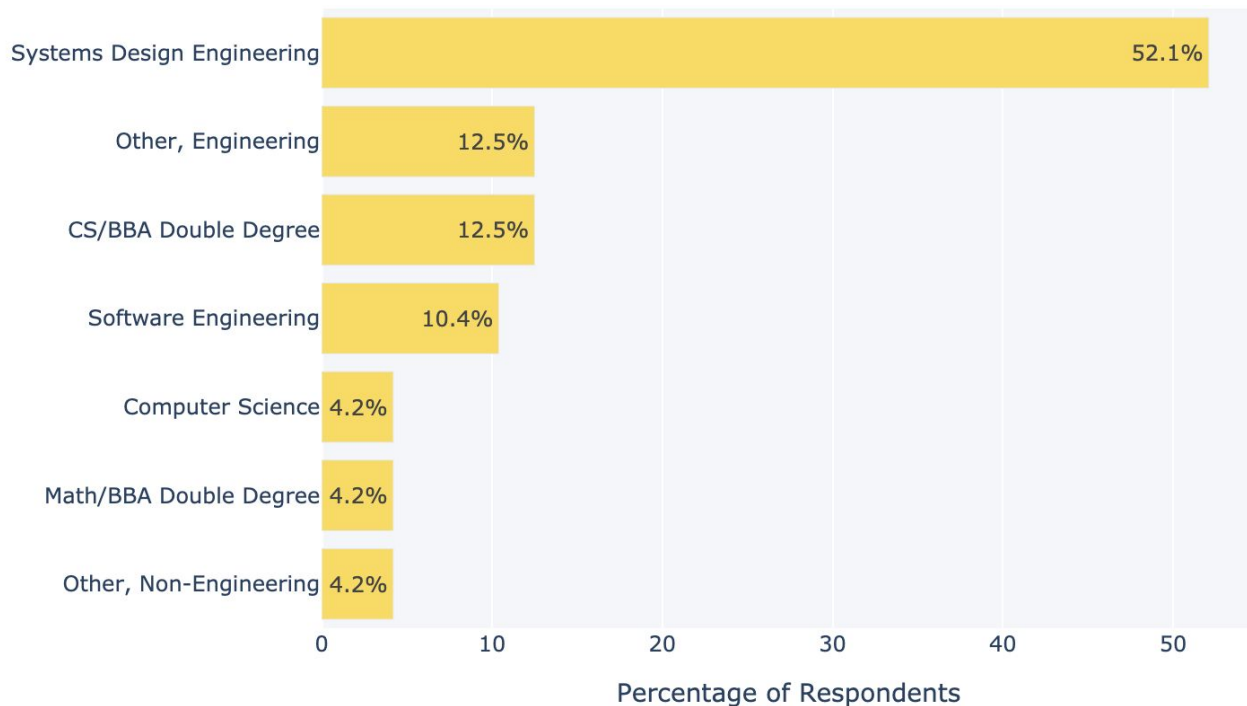
8.5

was the average
satisfaction of MGTE

*Respondents were asked to evaluate on a scale of 1-10,
with 1=not at all and 10= for sure*

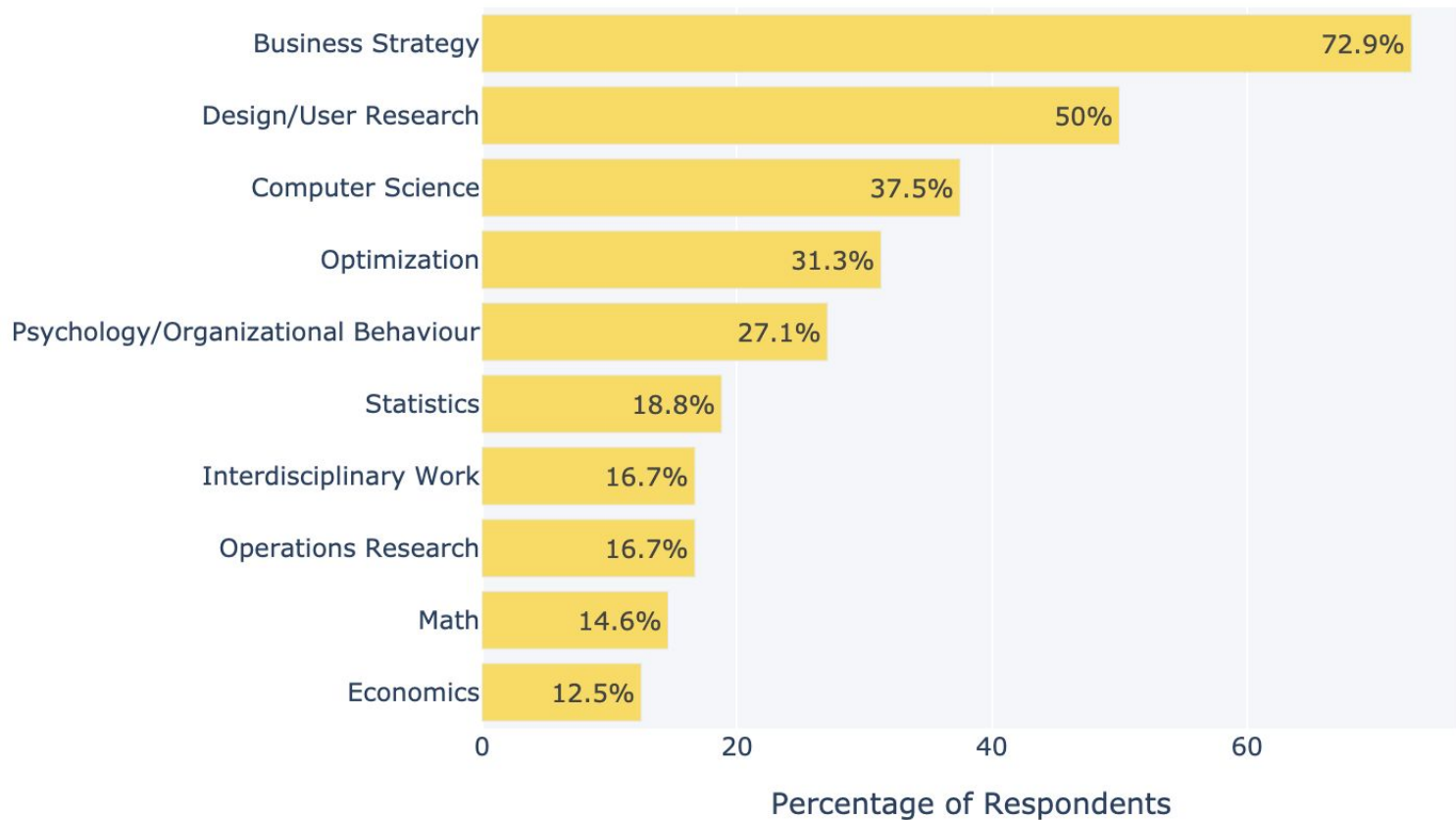


Reflection: What program would you have selected at Waterloo if you hadn't done MGTE?

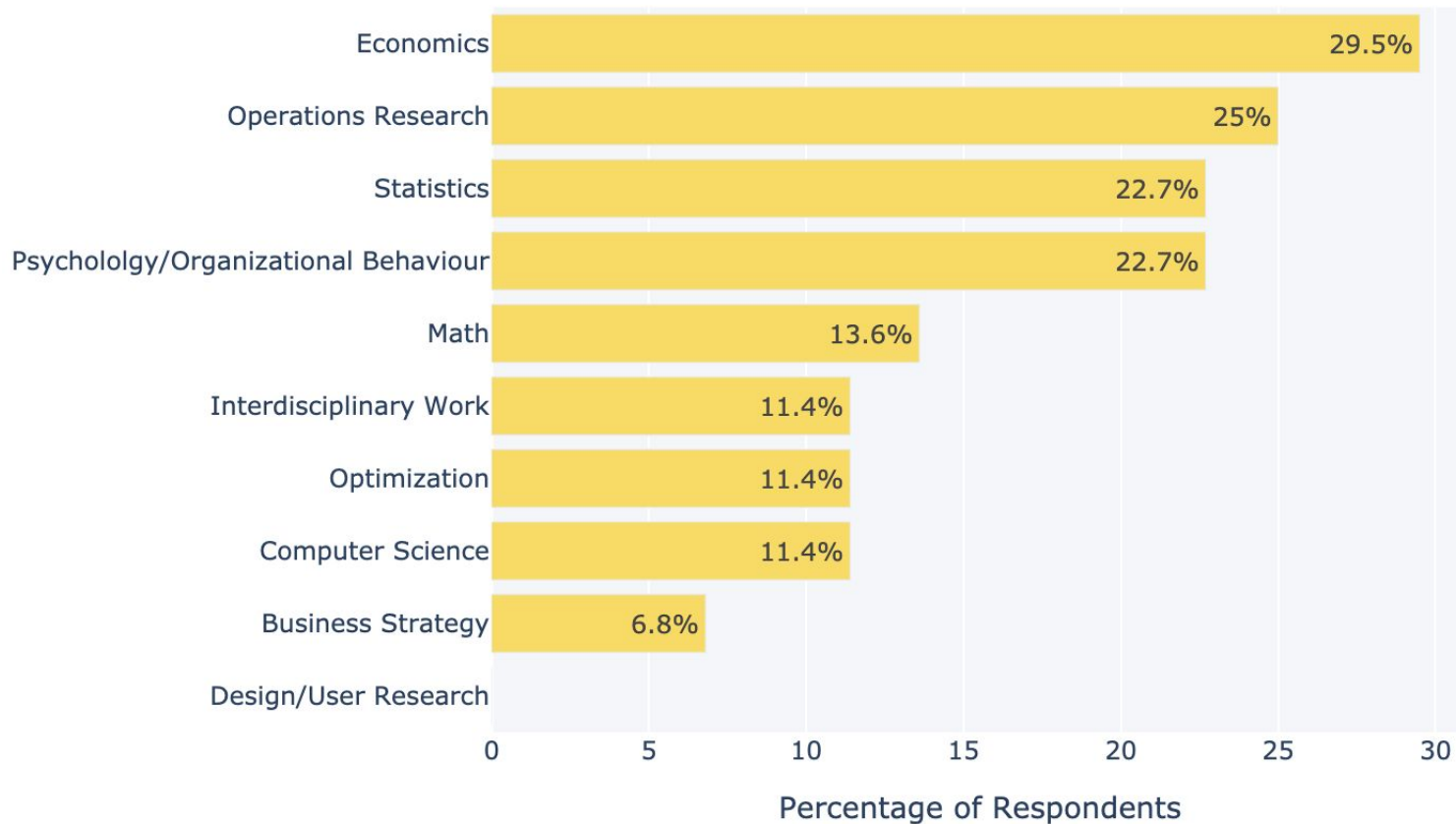


If we hadn't done MGTE, the majority of us would have selected **Systems Design Engineering**.

Reflection: What types of courses did you want more of?



Reflection: What types of courses did you want less of?

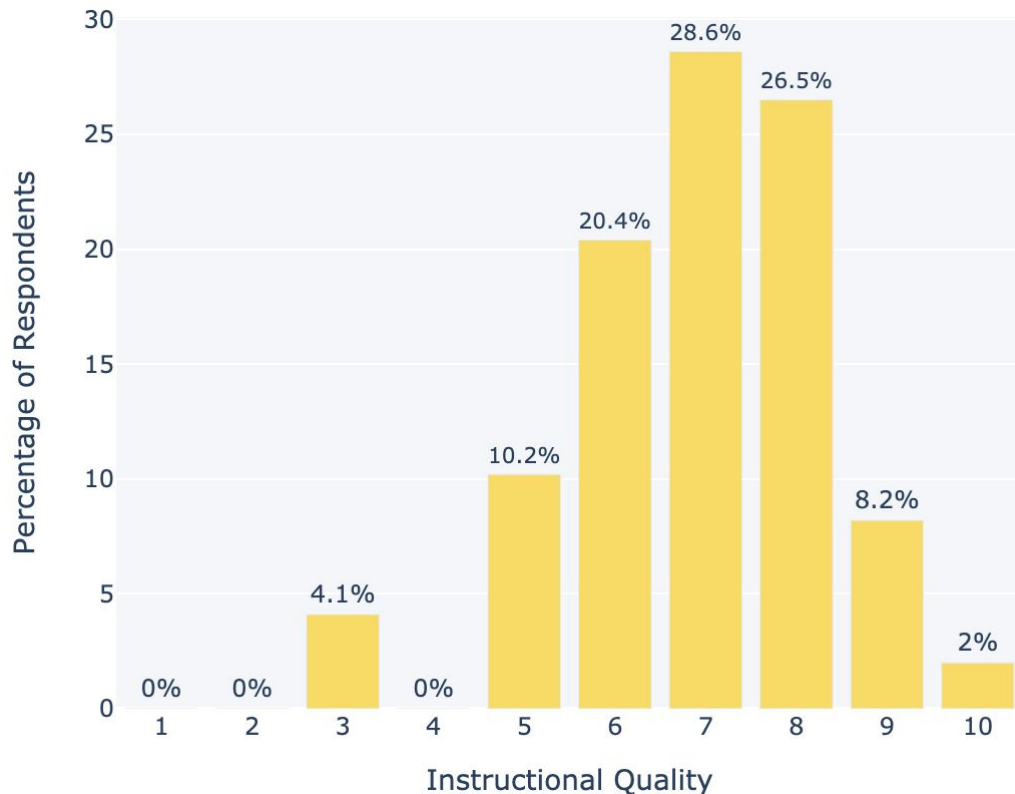


Reflection: How satisfied were you with MGTE professors?

7

**was the average satisfaction
with instructional quality**

Respondents were asked to evaluate on a scale of 1-10, with 1=not at all and 10= completely satisfied

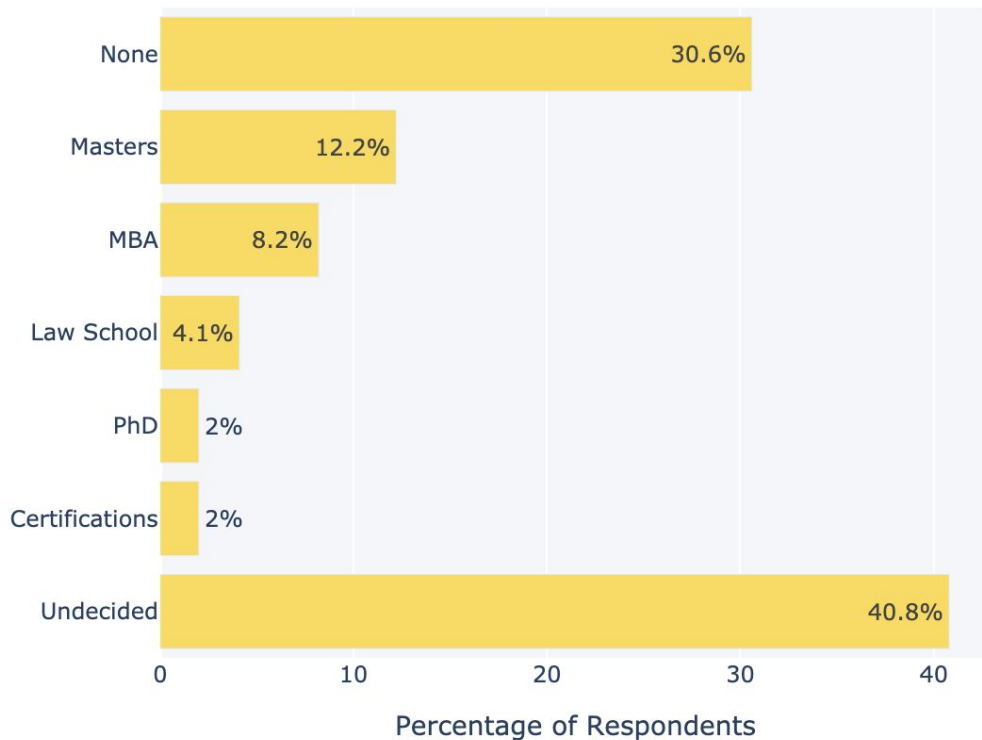


Do you plan to pursue any higher education?

~31%

of our class is not planning on pursuing any higher education

Shoutout to the **6%** of us planning on going to Law School or completing a PhD, that's dedication!

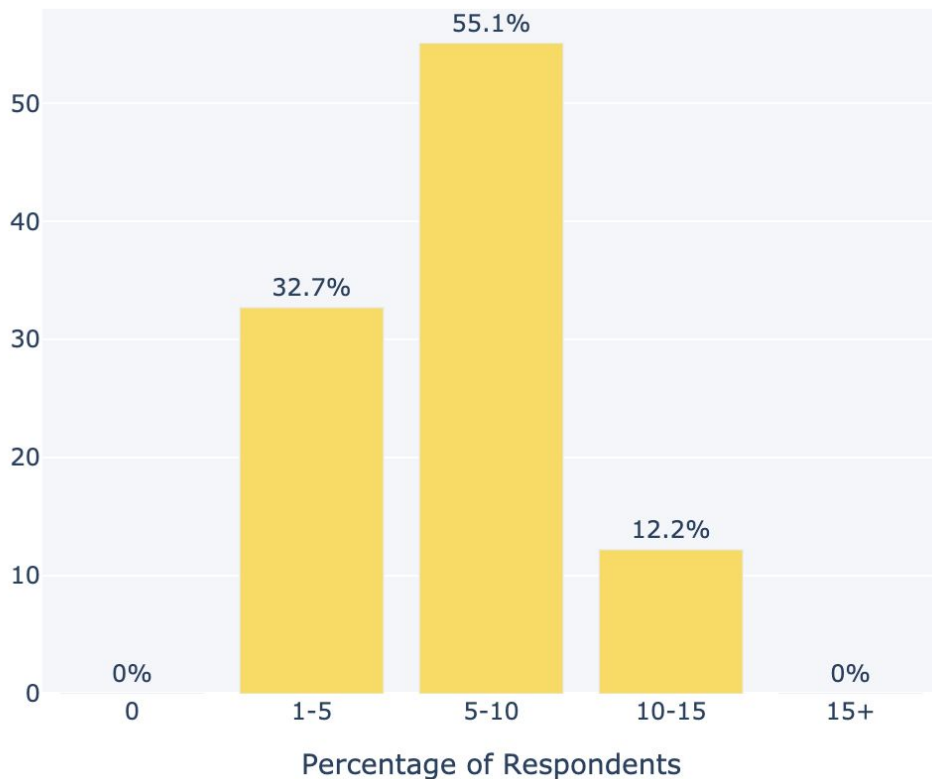


How many 2021 MGTEs do you expect
to stay in touch with?

~55%

of us plan on staying in touch
with 5-10 of our classmates

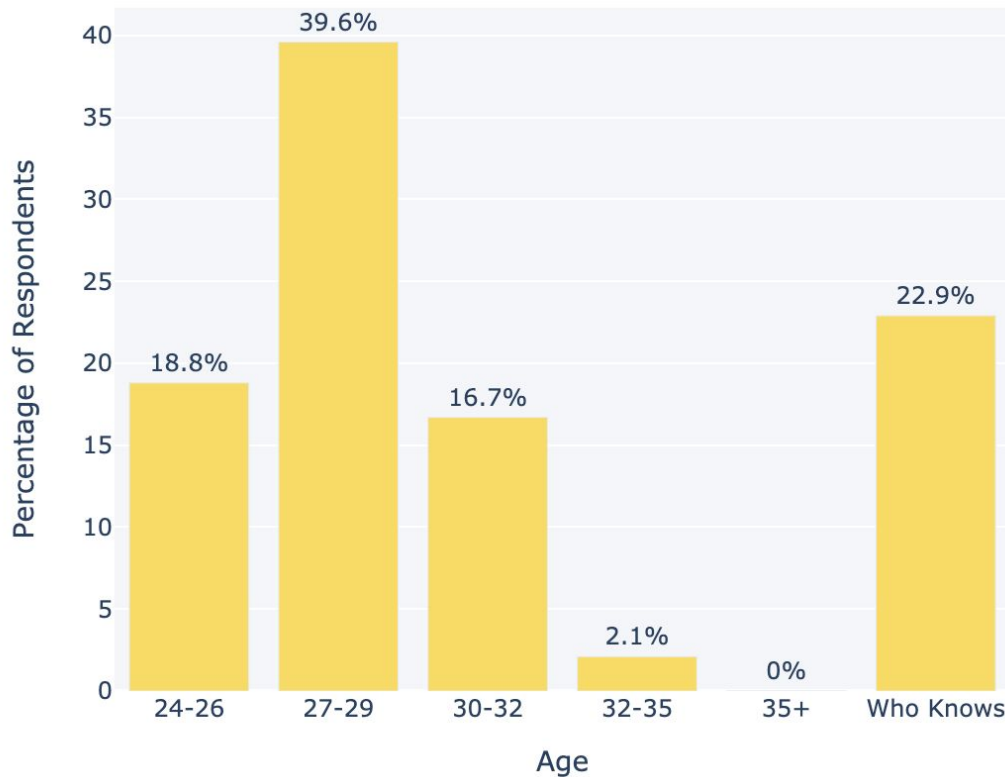
Who knows? Maybe we'll have a reunion in 5
years?



What age do you expect to get married?

~58%

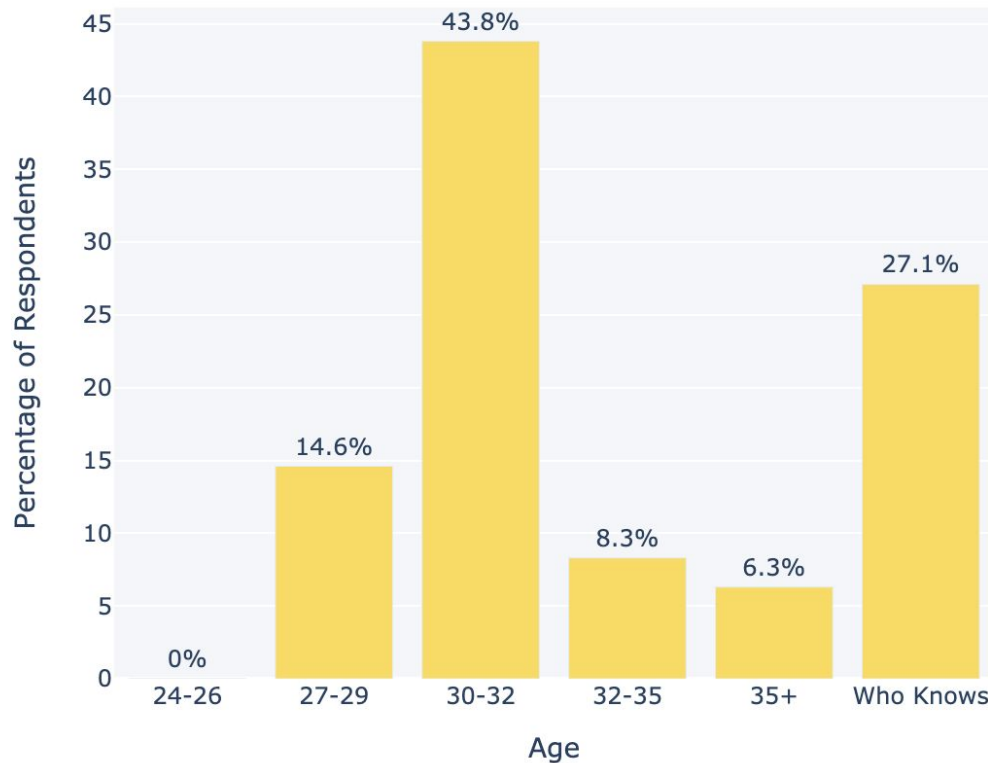
of our class expects to get married within 6 years of graduating



What age do you expect to have children?

~58%

of us expect to have
children within 10 years of
graduating



Reflection: What is the most important thing you
learned throughout university?

the importance of overcoming fear
 creating a good support system
 grades don't matter much in the end
 this is the time to make mistakes making friends
 find out what makes you happy always ask for more
time management
 no regrets work management
 just relax and see what happens
 skills take time don't give up work hard
 building a network finding balance have fun
 becoming confident in myself
 trust the process mindset be humble teamwork
 how to listen
 no grade is worth crying over
 working hard isn't always enough but not working hard is always not enough
 don't compare yourself to others
stress management
 how to take care of yourself because burnout is real
 making memories is more important than grades

THANK YOU!

We'd like to thank all the previous cohorts who inspired this class profile. You can check out their class profiles here:

A big thank you also goes out to those who who participated in the survey and contributed photos.

We hope that future Management Engineering graduating classes will continue to keep this tradition alive!

[SYDE 2017](#)

[SYDE 2018](#)

[SYDE 2019](#)

[SE 2020](#)

[TRON 2020](#)

[BME 2019](#)

[BME 2020](#)

[MGTE 2020](#)

AND FINALLY...

Although this wasn't the way we wanted our final year of undergrad to end, we've made some amazing memories along the way. The experiences we've shared together have shaped us into who we are today, and the friendships and bonds formed over the past 5 years will not be forgotten. We hope this snapshot gives you a glimpse of what it was like to be part of our cohort.

We'd like to thank you for taking the time to learn about our class. If you're interested in conducting your own class survey, feel free to reach out to us by email or on LinkedIn!

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2016 UW Engineering