NORTHEASTERN UNIVERSITY'S CO-OP PROGRAM: AN OVERVIEW OF SUPPORT INFRASTRUCTURE AND DIVERSITY IN COMPUTER SCIENCES PROGRAM
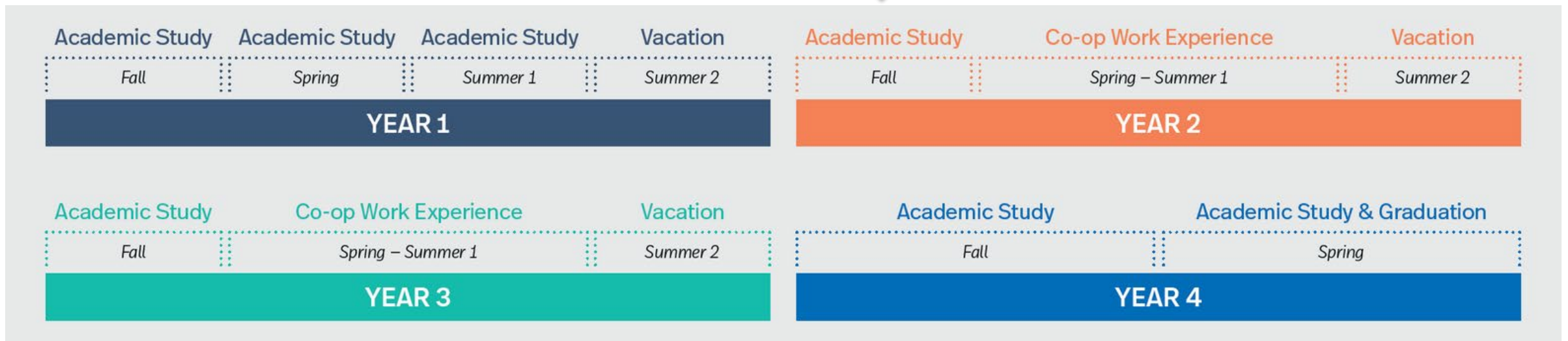
June 29th, 2021

Anis Abdulle
Assistant Co-op Coordinator
Khoury College of Computer Sciences
Northeastern University

Northeastern University
Khoury College of Computer Sciences

NORTHEASTERN'S CO-OP PROGRAM

- In existence for over 100 years
- Strong relationship with industry partners
- Students complete 6-month placements (integrated into their academic plan)
- Students complete professional development/Co-op prep course prior to going out on Co-op

Co-op Prep Course

Academic Study	Academic Study	Academic Study	Vacation
Fall	Spring	Summer 1	Summer 2
YEAR 1			

Academic Study	Co-op Work Experience	Vacation
Fall	Spring – Summer 1	Summer 2
YEAR 2		

Academic Study	Co-op Work Experience	Vacation
Fall	Spring – Summer 1	Summer 2
YEAR 3		

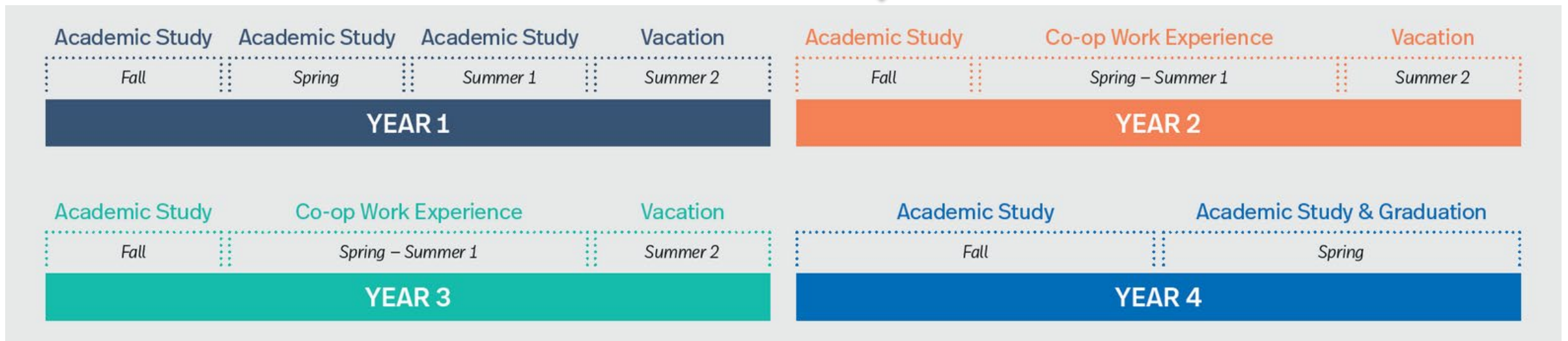| Academic Study	Academic Study & Graduation
Fall	Spring
YEAR 4	

CO-OP PREP COURSE

- Marketing self to Employers – how to be an attractive candidate
- Job Search and Career Pathways
- Interviewing and Employer Communication
- Social media/Online presence (LinkedIn & Github)
- Navigating Workplace Challenges and Optimizing Co-op Experience

NORTHEASTERN'S CO-OP PROGRAM

- 98.5% - Overall Co-op Participation
- 89.1% - Complete at least 2 Co-ops
- Types of roles:
  - Software Engineer
  - Cyber Security Engineer
  - Data Scientist

Co-op Prep Course

Academic Study	Academic Study	Academic Study	Vacation
Fall	Spring	Summer 1	Summer 2

YEAR 1

Academic Study	Co-op Work Experience	Vacation
Fall	Spring – Summer 1	Summer 2

YEAR 2

Academic Study	Co-op Work Experience	Vacation
Fall	Spring – Summer 1	Summer 2

YEAR 3

Academic Study	Academic Study & Graduation
Fall	Spring

YEAR 4

Image source: https://cos.northeastern.edu/experiential-learning/cooperative-education/#about-the-program
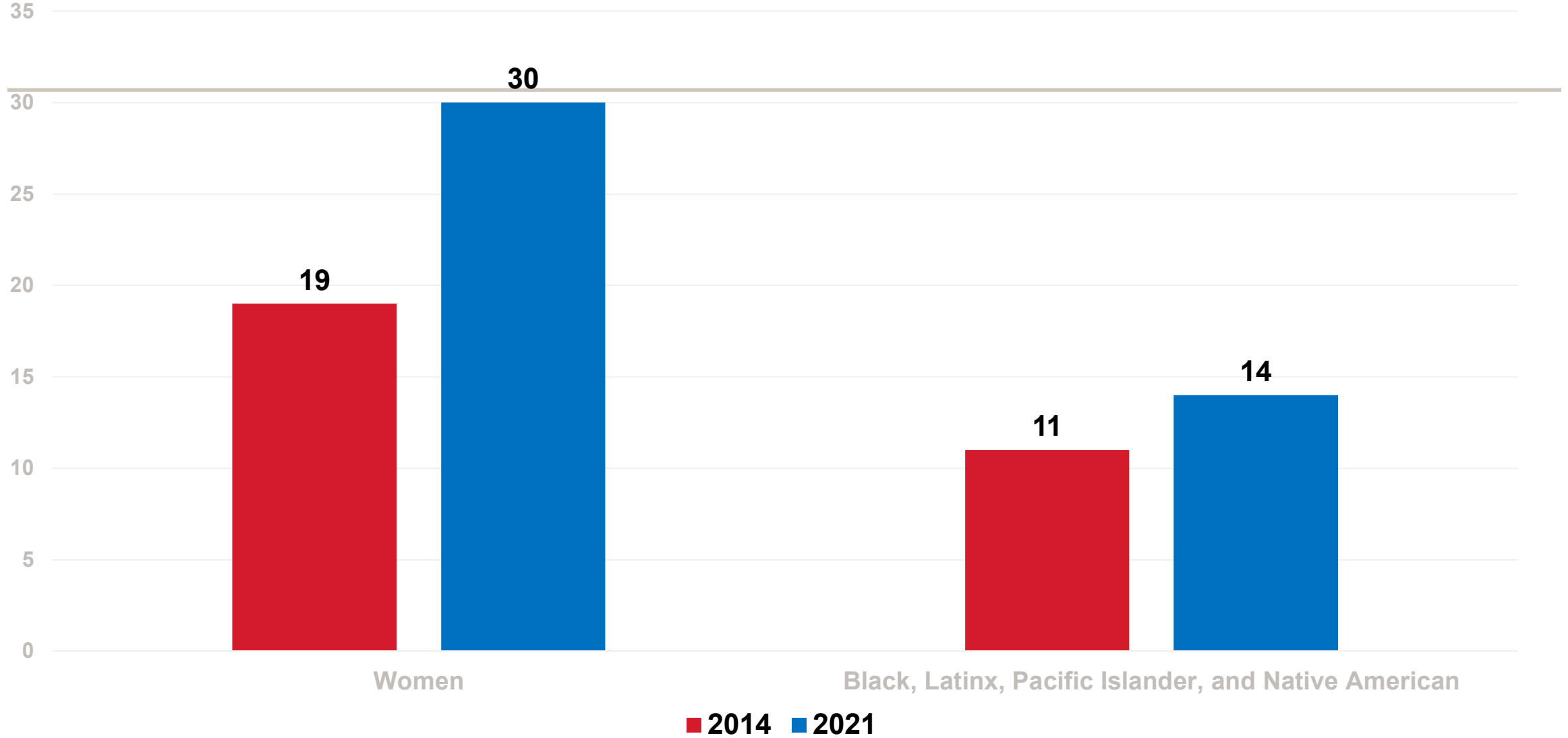
SUPPORT INFRASTRUCTURE

- Combined Majors
- Academic and Co-op Advising
- Peer to peer mentorship
- Robust Teaching Assistant Program
- Student clubs
  - Women In Tech
  - Multi-Diverse Unified Leaders in the Technology Industry (MULTI)
  - The Computer Science Mentoring Organization (CoSMO)

UG KHOURY COLLEGE STUDENT DEMOGRAPHICS (%)

Women
- 2014: 19
- 2021: 30

Black, Latinx, Pacific Islander, and Native American
- 2014: 11
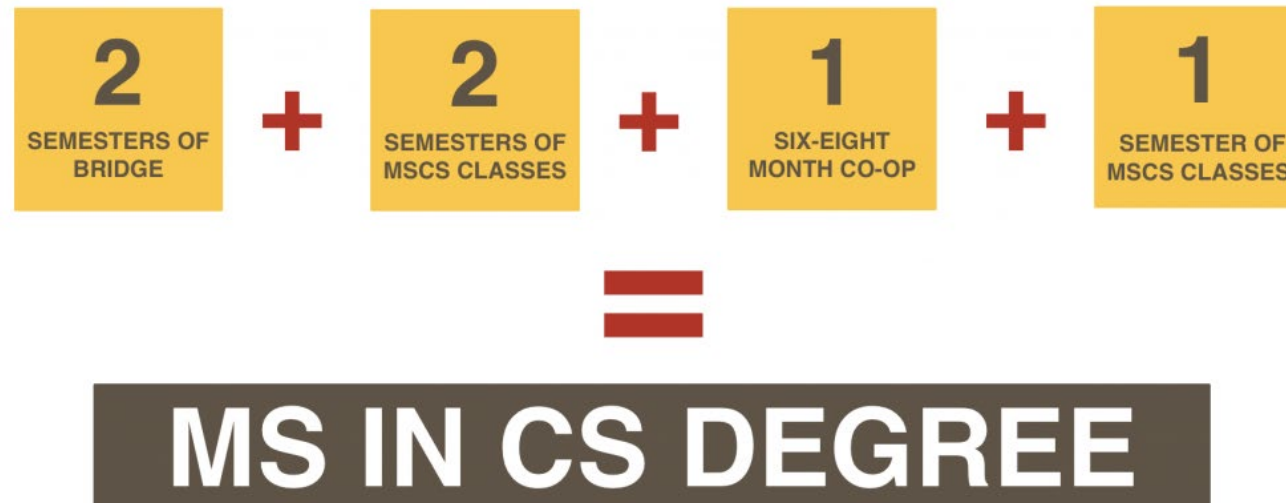- 2021: 14

Legend: ■ 2014 ■ 2021

PROGRAM OUTCOMES

- Post-graduation (within 9 months of graduation)
  - 83.7%: Employed full-time
  - 11%: Pursuing additional education
- Industries:
  - Professional, Scientific, and Technical Services
  - Health Care and Social Assistance
  - Finance and Insurance

ALIGN GRADUATE COMPUTER SCIENCE PROGRAM

- Align is built on the belief that computer sciences are for everyone, regardless of background

- Cohort-based learning model

- Academic bridge courses prepare students from any undergraduate discipline for graduate level CS coursework

- Provide electives that allow students to tailor the degree to their personal and professional goals

2 SEMESTERS OF BRIDGE **+** **2** SEMESTERS OF MSCS CLASSES **+** **1** SIX-EIGHT MONTH CO-OP **+** **1** SEMESTER OF MSCS CLASSES

=

MS IN CS DEGREE

Source: https://www.northeastern.edu/graduate/program/master-of-science-in-computer-science-align-silicon-valley-5236/

CENTER FOR INCLUSIVE COMPUTING (CIC)

- Founded in 2019
- Awards funding to colleges and universities to scale best practices that increase the representation of women in undergraduate computing

Evidence in action – Practices that have been shown to increase representation of women in computing at the undergraduate level

- Make it easy to discover computing
- Redesign the intro sequence
- Change the culture
- Collaborate across campus
- Collect and analyze data

For more info on CIC visit: https://cic.khoury.northeastern.edu/

https://cic.khoury.northeastern.edu/best-practices/

MOVING FORWARD

- More investment in support infrastructure
- First year students experiential career plan
  - Learn and engage in experiential opportunities as early as the first year
  - Strategy:
    - Standalone, interactive modules on career pathways, resume building
    - Introduction to building experiences
      Hackathons, Projects, Internship
    - Personalized support - 1:1 peer mentorship and access to co-op counselor

First Year Support Programs

Co-op Prep Course

Academic Study	Academic Study	Academic Study	Vacation
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YEAR 1			

Academic Study	Co-op Work Experience		Vacation
Fall	Spring – Summer 1		Summer 2
YEAR 2			

Academic Study	Co-op Work Experience	Vacation
Fall	Spring – Summer 1	Summer 2
YEAR 3		

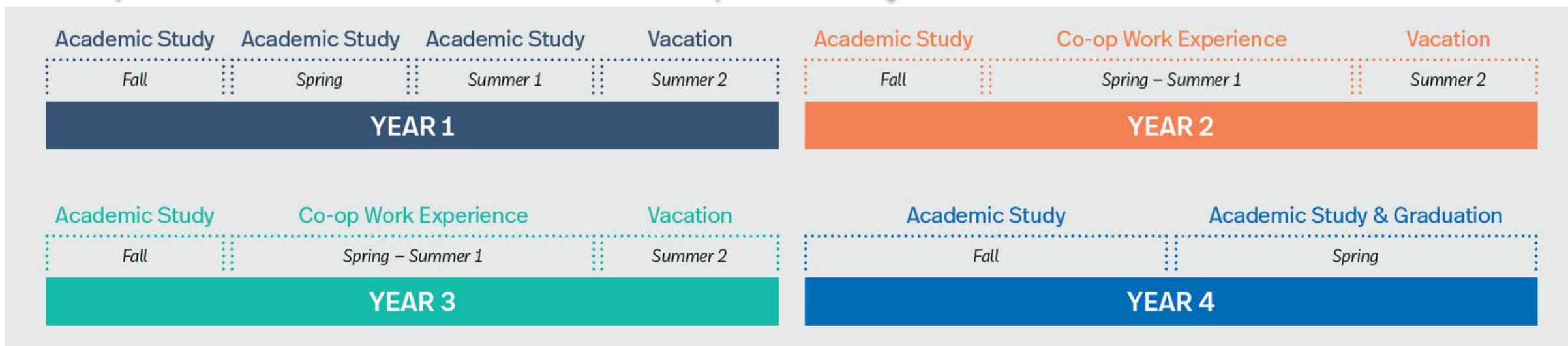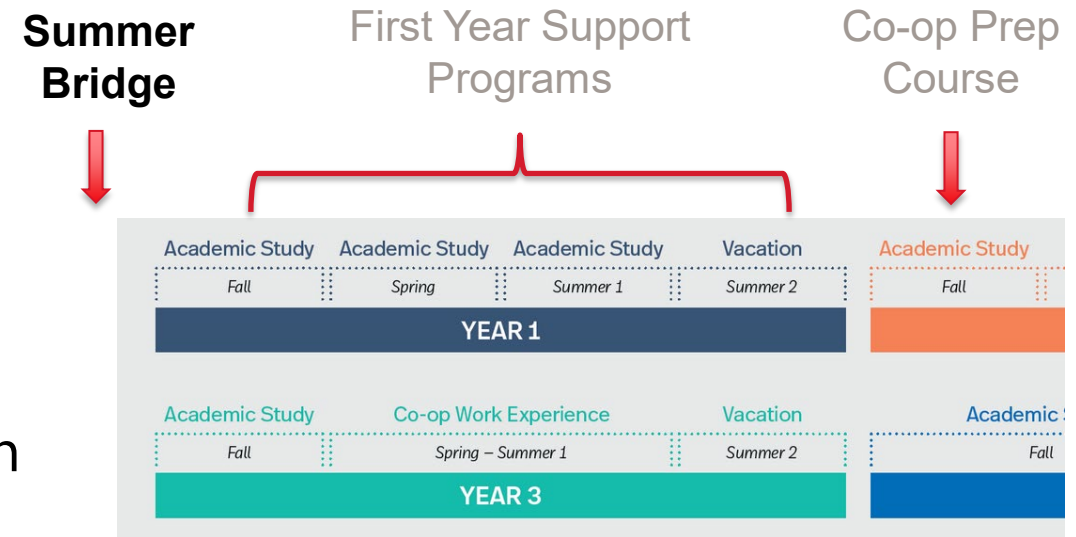| Academic Study	Academic Study & Graduation
Fall	Spring
YEAR 4	

Image source: https://cos.northeastern.edu/experiential-learning/cooperative-education/#about-the-program

MOVING FORWARD

- Summer Bridge Scholars program
  - Focused on historically underrepresented populations at the university.
  - Early opportunity for students to build community and accelerate their Northeastern journey
  - Program includes Projects, lectures, and group activities

Summer Bridge First Year Support Programs Co-op Prep Course

Academic Study	Academic Study	Academic Study	Vacation	Academic Study
Fall	Spring	Summer 1	Summer 2	Fall

YEAR 1

Academic Study	Co-op Work Experience		Vacation	Academic
Fall	Spring – Summer 1		Summer 2	Fall

YEAR 3

https://www.northeastern.edu/admissions/summerbridge/

CONCLUSION

- Support infrastructure is critical
  - Teaching Assistant & Peer Mentors
  - Structured preparation for internship or other experiential learning opportunities
- Campus environment
  - Create a supportive and inclusive atmosphere
  - Student clubs