



A 31-Year Record of CS Enrollment at a Single Urban Public Institution

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ABSTRACT

- 31-year record of undergraduate and master's enrollment
- Compared with national trends
- Enrollment in CS0 and CS1
- Enrollment in applications course
- Enrollment policies
- Core vs. Pathways *GenEd* mandates



BROOKLYN COLLEGE of CUNY

- Middle-Lower class income
- 17000 students
- CIS Department
 - BS in Computer Science
 - BS in Multimedia Computing
 - BS in Information Systems (Joint with Economics)
 - ~550 majors
 - MA in Computer Science
 - MS in Information Systems
 - Coordinated Engineering Honors Program
Participates in Ph.D. program with CUNY Graduate Center

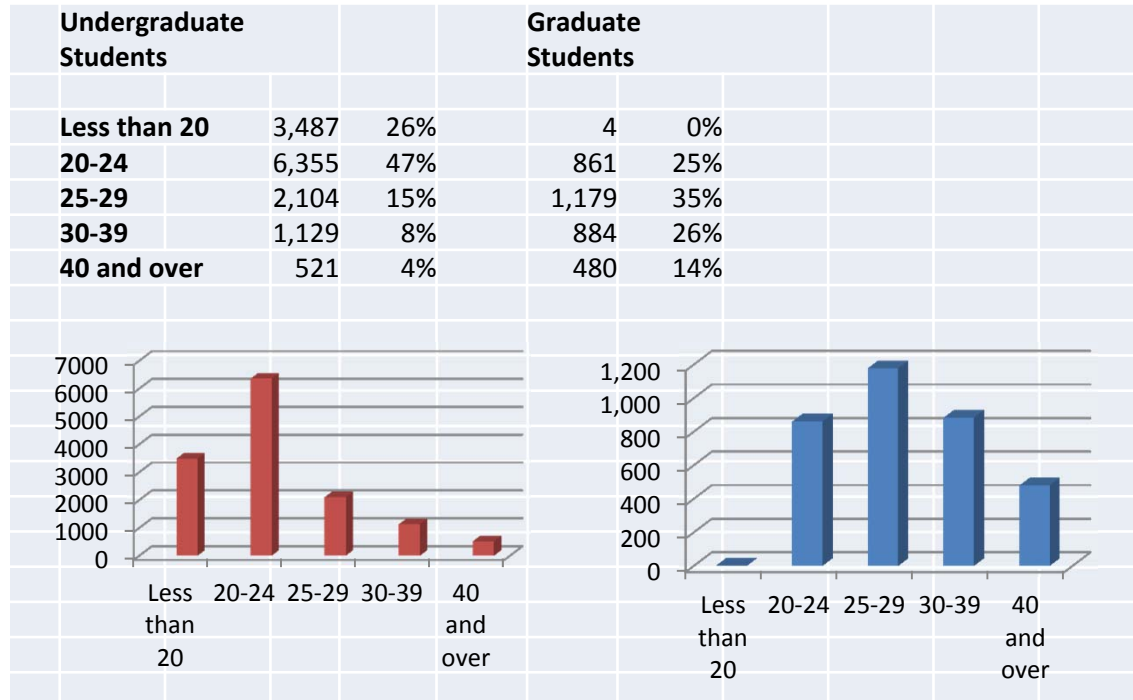


Demographics (2013-2014)

- 31% White
 - 18% Black or African American
 - 15% Hispanic
 - 14% Asian
 - 22% Other & Unidentified
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- 61% Female
 - 39% Male



Demographics (2013-2014)





Programs in Computing

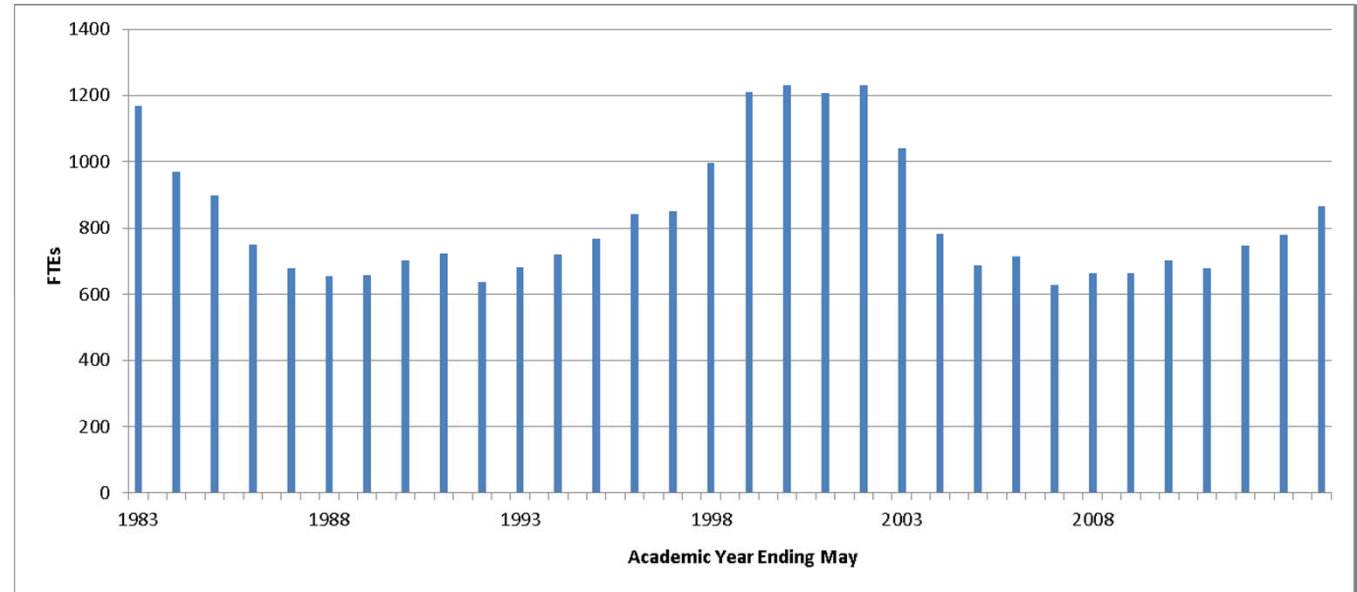
Program	Year Begun	Departments	# of Majors (Feb. 2014)
Bachelor's in Computer Science	1974	CIS	289
Bachelor's in Computational Mathematics	1972	CIS / Mathematics	9
Bachelor's in Information Systems	2006	CIS / Business	82
Bachelor's in Multimedia Computing	2006	CIS	43
Master's in Computer Science	1977	CIS	61
Master's in Information Systems	1989	CIS	66

- 26 full-time faculty
- 15 adjunct faculty
- 3 graduate fellows

- Department founded in 1972



Undergraduate CS Enrollment



- Undergraduate FTE represents 15 credit-hours
- Does not include enrollment in CS0

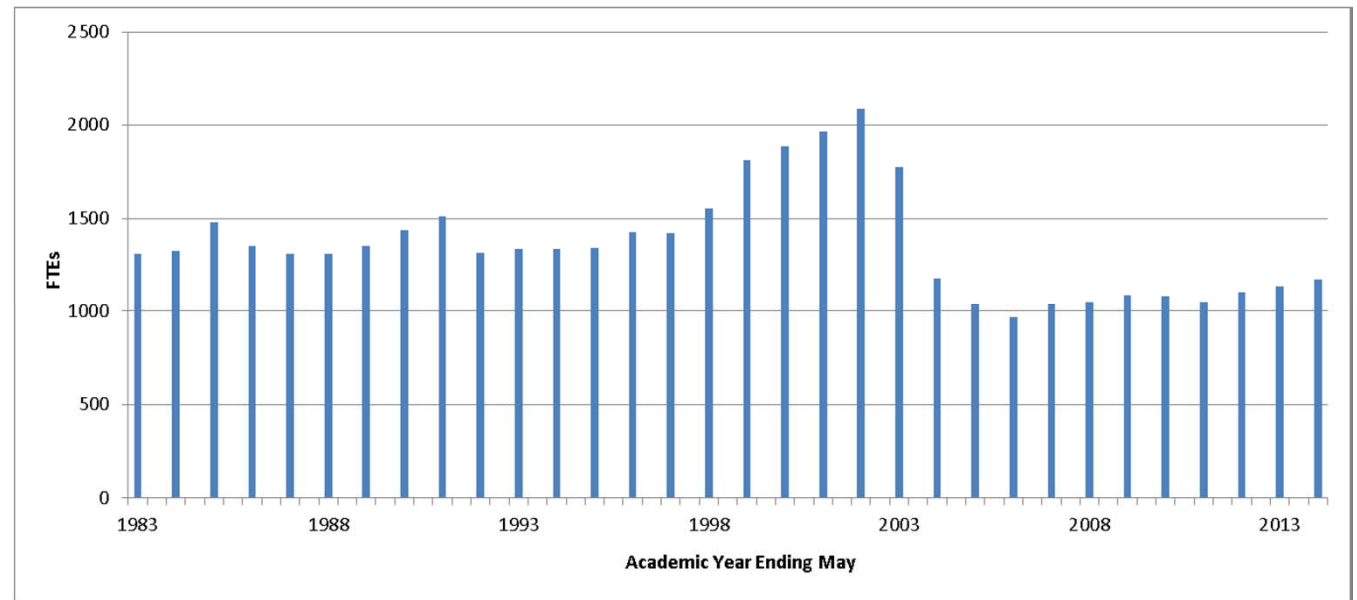


Causes for the Wide Swings

- Consistent with national trends
 - National economy & job market
 - Shift in nature of computing skills
 - Advent of more user-oriented computing tools
 - HS counselors discourage students from entering computer science
 - Today demand exceeds supply

Total Departmental FTEs

(Undergrad+Grad+CS0)



- Undergraduate FTE represents 15 credit-hours
- Graduate FTE represents 12 credit-hours



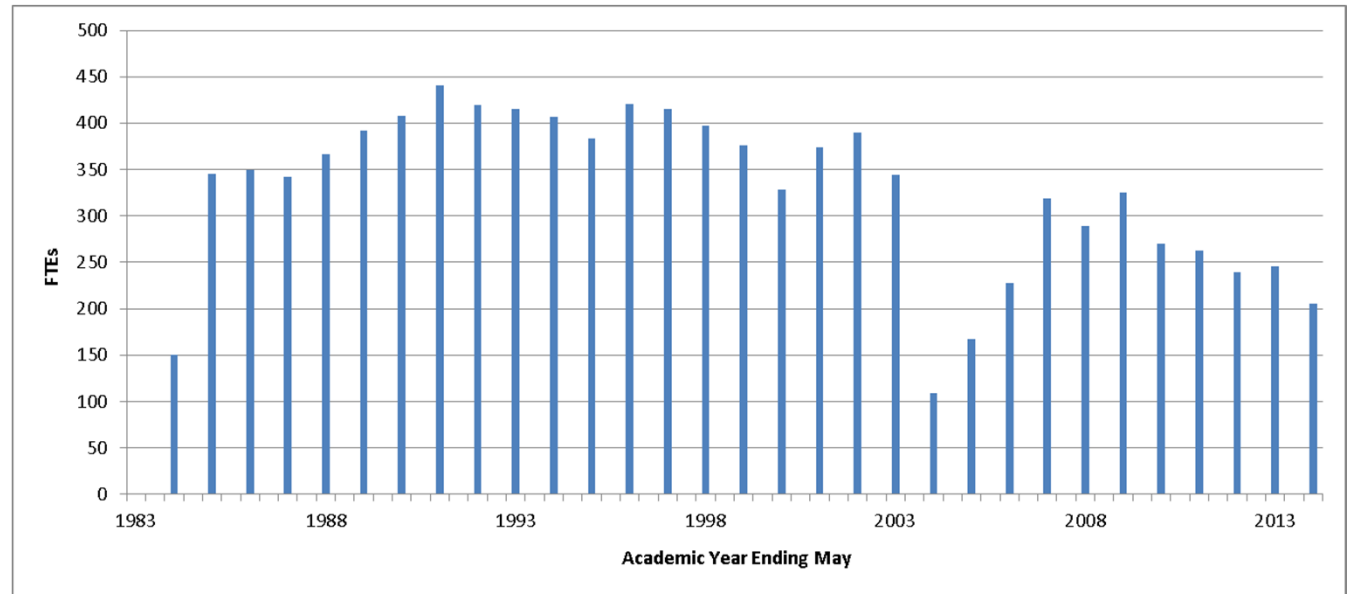
Parachute and Free-Fall

The 1983-92 vs. the 2003-07 Reduction

- Undergraduate decline
 - 1983-92 (-32%)
 - 2003-07 (-48%)
- Introduction of college-wide core and graduate students
 - 1980-2002
 - mitigates total FTE drop
- CUNY shifts to initial community college placement
 - 2003-2007
 - students exempt from lower-tier core



Core Computing FTEs





Core at Brooklyn College

- Core introduced in 1980
 - Combined Math/CIS class – taught math using BASIC
- Revised Core in 1985
 - Combined Math/CIS class – low level logic & Programming using Pascal
- Core Split in 2003
 - CIS class – Nature, Power and Limits of Computing
 - JavaScript
- College-wide Core split in 2006
 - Lower-tier: *Nature, Power and Limits of Computing*
 - Upper-tier: *Robotics or Paradoxes and the Limits of Knowledge*

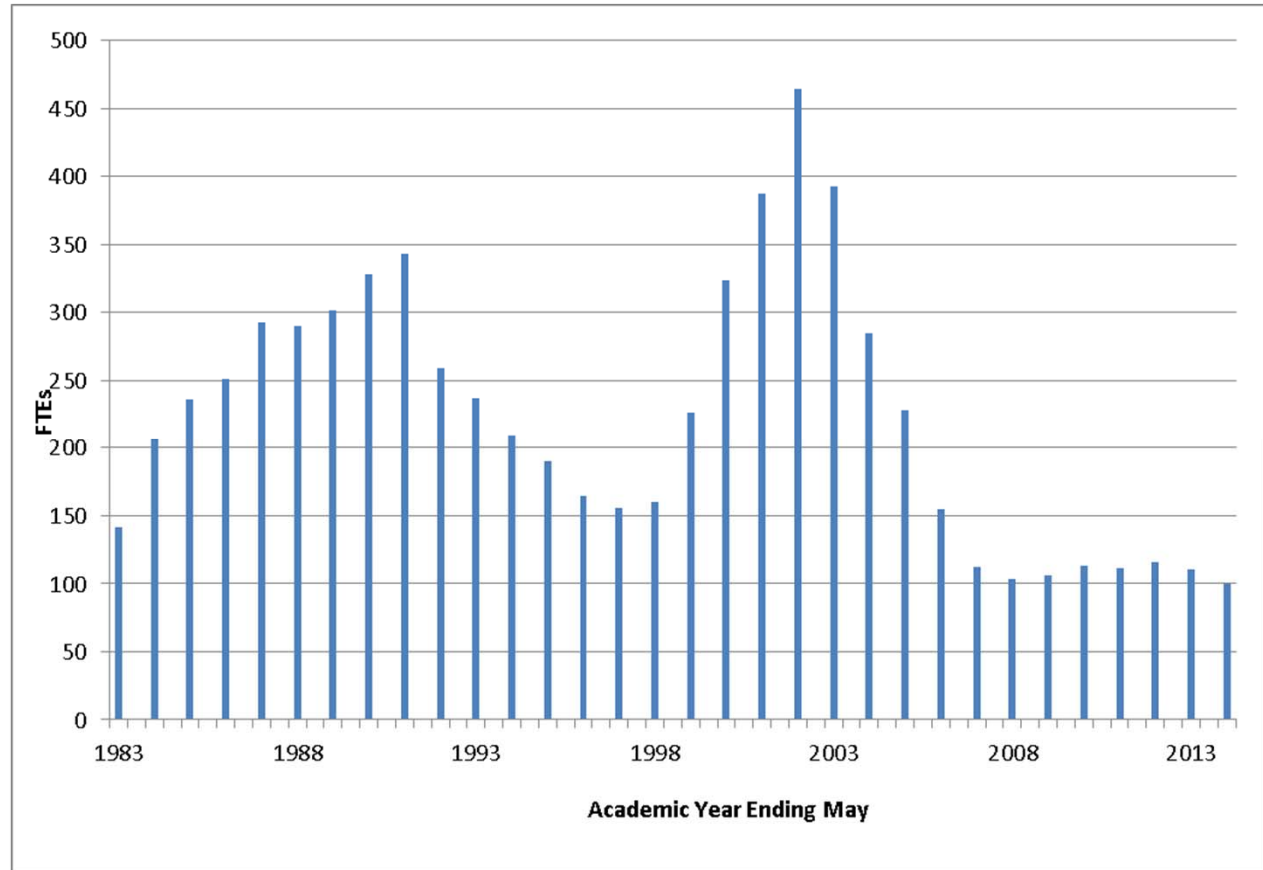


Pathways *GenEd* at CUNY

- Mandated as of Fall 2013 by Board of Trustees
- Fierce opposition by faculty
- Lowered number of *GenEd* courses
- Mandated university wide transfer of *GenEd*
- Buckets
 - “*Our Scientific World*”, “*Mathematics & Problem Solving*”
“*Creative Expressions*”, “*The Individual & Society*”
 - CIS not included
- College Option
 - Students choose two from among various upper-tier core science courses
 - CIS offers: “*Robotics*” & “*Paradoxes and the Limits of Knowledge*”



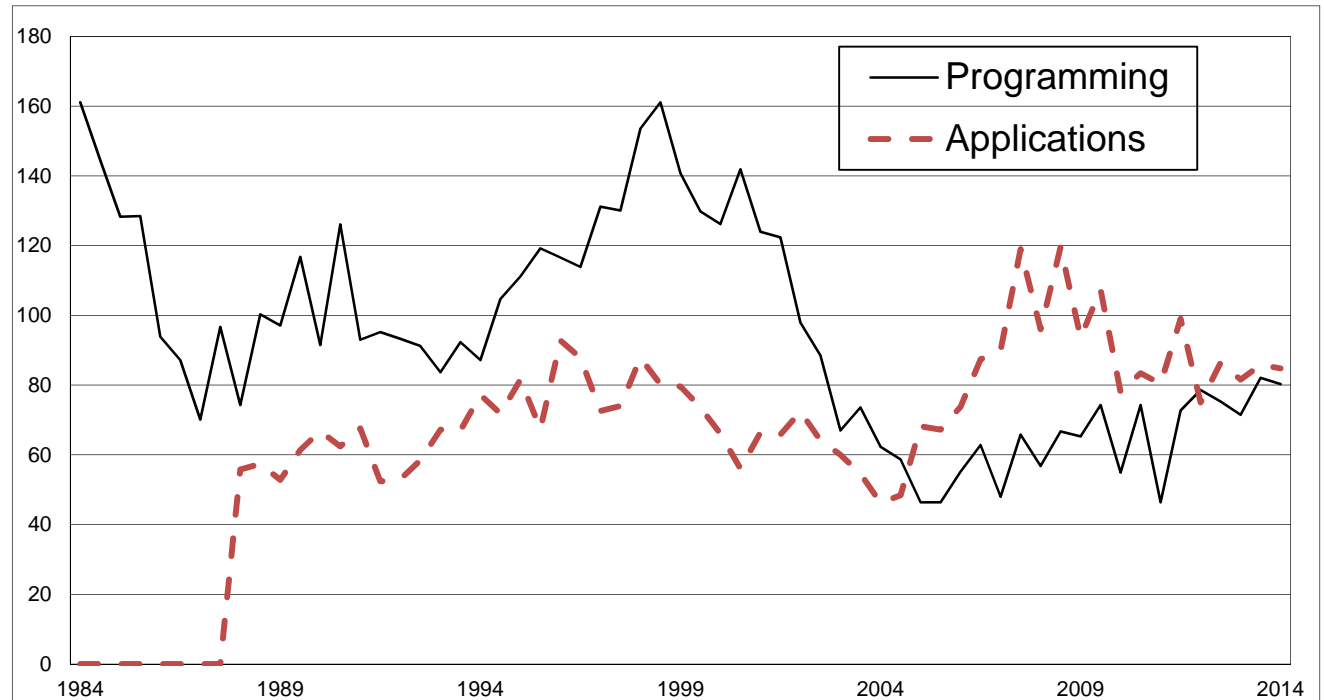
Master's Program Enrollment





First-Level Course Enrollment

CS1 & the Computer Applications Course





CS1 vs. CA vs. CO Trends

- CS1 – Introduction to Programming (currently using C++)
 - Increase as demand for programmers increase
 - Has already caused an increase in advanced courses offered
- Applications – Microsoft Office
 - Required by Business & Accounting Programs
 - Will probably drop in enrollment as more students are exempt
- CO – *GenEd*
 - College Option (Robotics, Paradoxes) remain strong
 - Lobbying for inclusion in CUNY Common Core buckets.



Conclusion

- Computing course enrollments are cyclical
- National trends vs local idiosyncrasies
- Technological events (e.g. apps, robotics)
- Perception & realities of the job market
- K-12 education trends



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College