

**Fifth Annual Report
from the Committee on Governance
to the WPI Faculty concerning:**

**The TTT/NTT Teaching Distribution at WPI:
Fall 2004 to Spring 2015**

COG Members:

Provost Bruce Bursten

Prof. Chrys Demetry

Prof. Tanja Dominko

Prof. Dan Dougherty

Prof. Glenn Gaudette (Chair)

Prof. Mark Richman

Prof. Diane Strong

Prof. Suzanne Weekes

Background

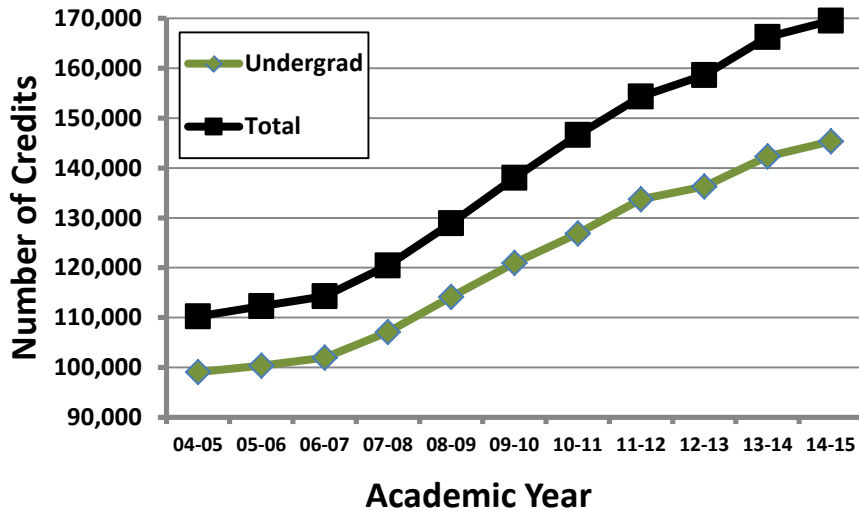
- April 2011: WPI Faculty voted to eliminate the “Three- and Five-Year Rule”
 - Rule: No full-time non-tenure track teaching appointment may extend for more than three consecutive years or for more than a total of five years. *Appointment beyond this limitation must be as a tenure-track Faculty member.*
- Effect of the rule: (...the problem we wanted to solve...!)
 - *In principle*, it prevented WPI from establishing long-term relationships with non-tenure track faculty members.
- Concerns about eliminating the rule:
 - Tenured and tenure-track (TTT) Faculty wanted to maintain its primary role in delivering WPI’s academic curriculum.
 - TTT Faculty wanted to ensure that its commitment to delivering the curriculum (to a rapidly growing student body) did not work against us in expanding our other activities.

Solution: Appendix D of the WPI Faculty Constitution (approved April 2011)

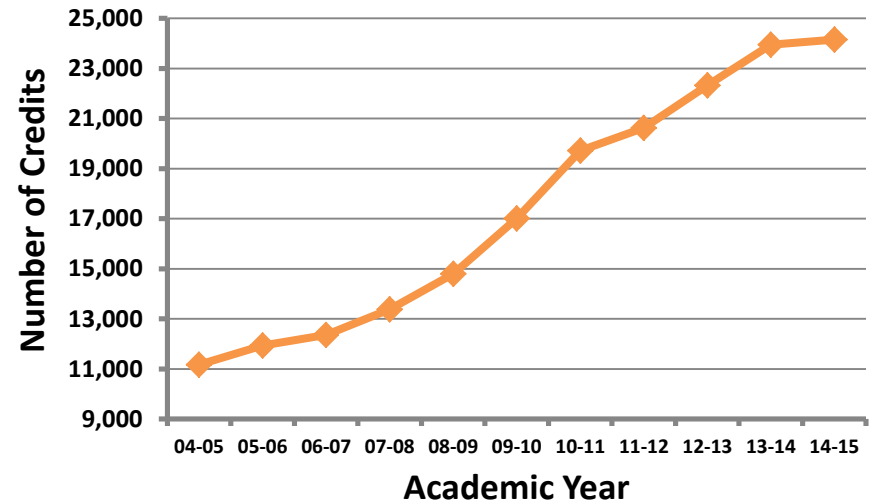
- The tenured and tenure-track (TTT) Faculty at WPI are committed to delivering a *significant majority* of the academic credit offered to WPI students.
- WPI meets this commitment by ensuring that the TTT Faculty increase at a rate that is commensurate with the University's growth and strategic needs.
- Non-tenure track (NTT) faculty members enhance new and existing educational programs, and complement and expand scholarly expertise on campus.
- The Committee on Governance will present a report (for open discussion) to the Faculty each year concerning the distribution of teaching done by TTT faculty members and NTT faculty members.
 - Formal mechanism for Faculty oversight

Academic Credits Delivered: Fall 2004 to Spring 2015

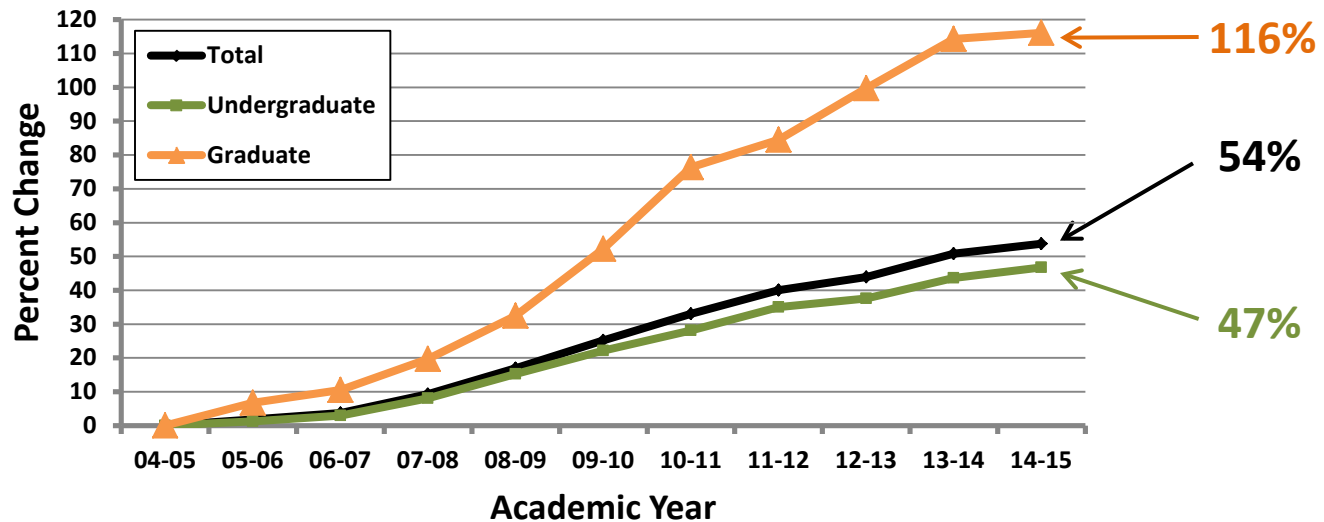
Academic Credits Delivered



Graduate Credits Delivered

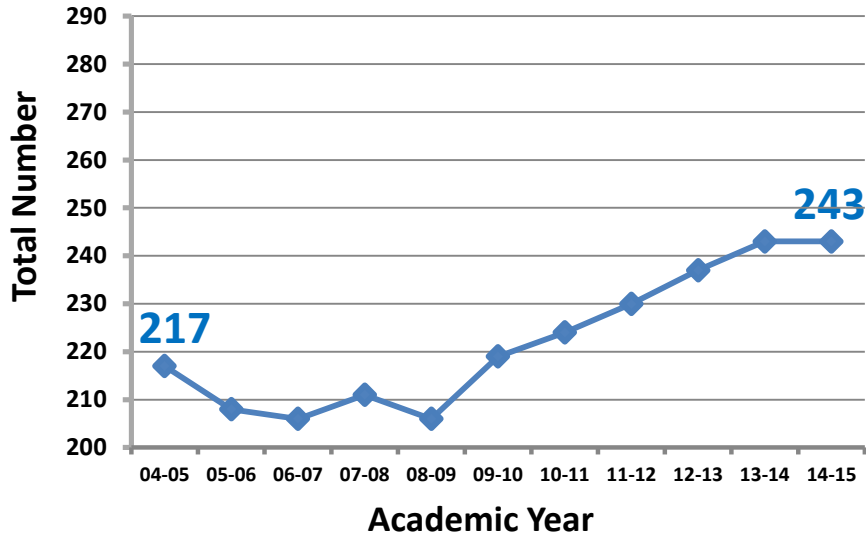


Percent Change in Credits Delivered Since 2004

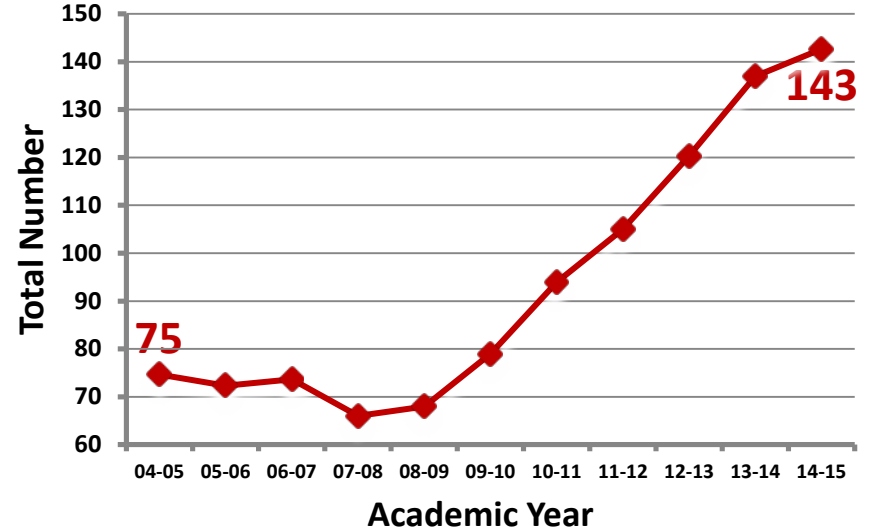


Faculty Population: Fall 2004 to Spring 2015

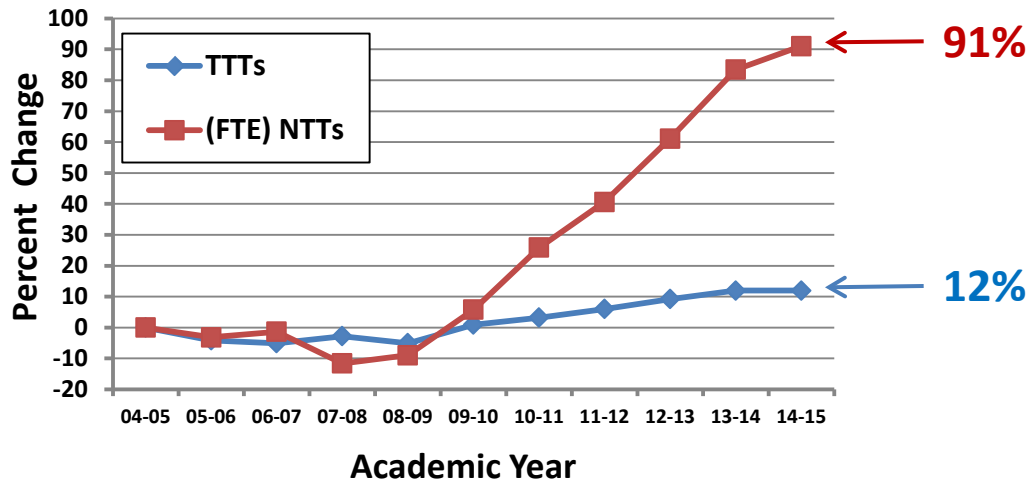
Total Number of TTTs



Total Number of (FTE) NTTs



Percent Change in TTTs and (FTE) NTTs

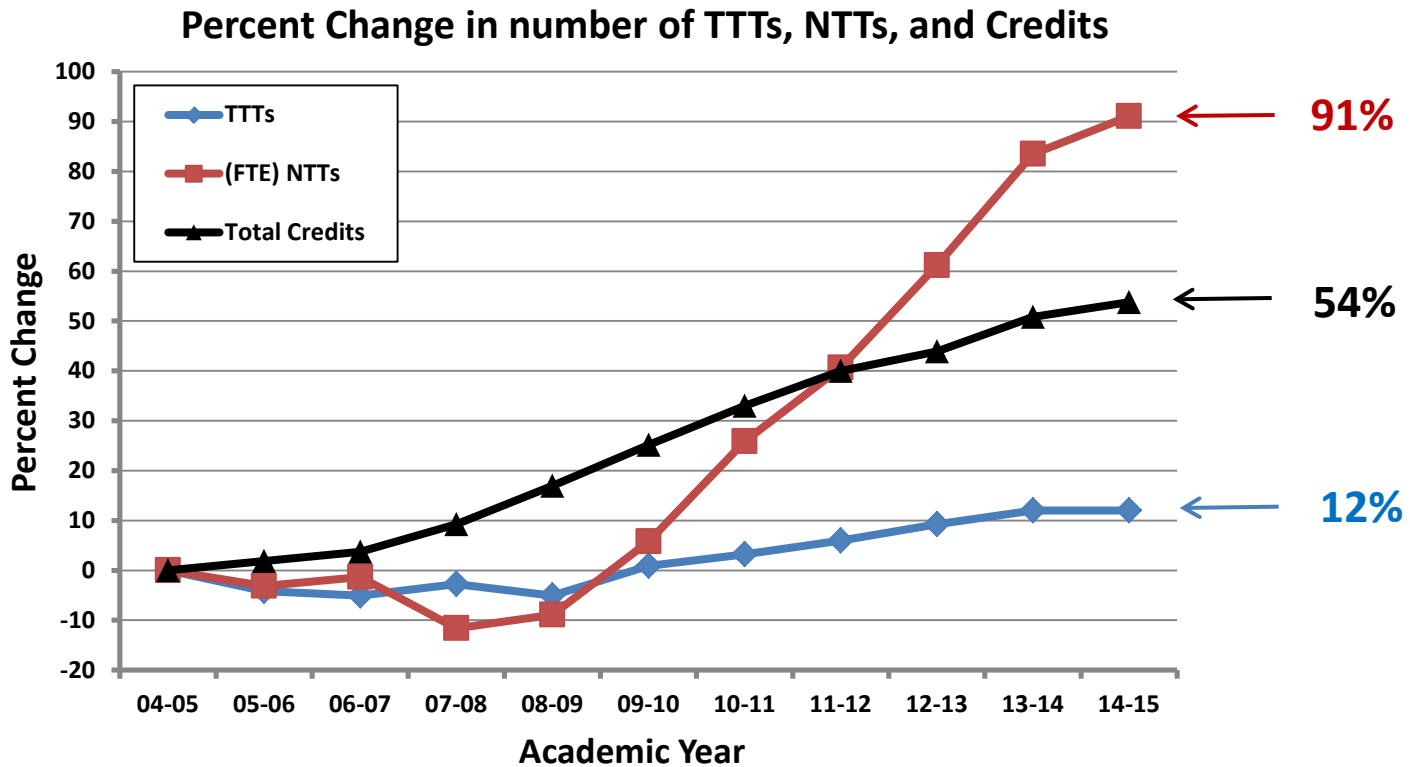


TTT to NTT Ratios

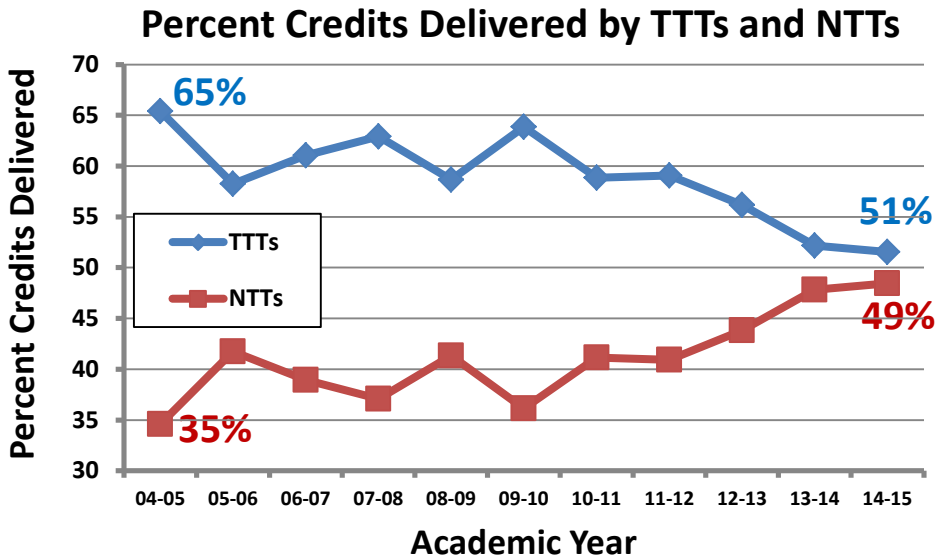
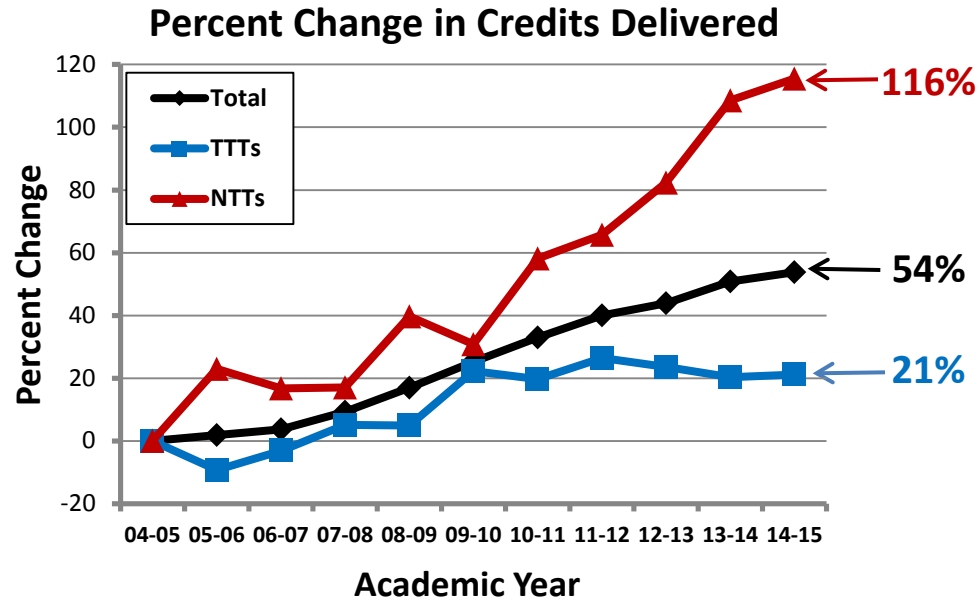
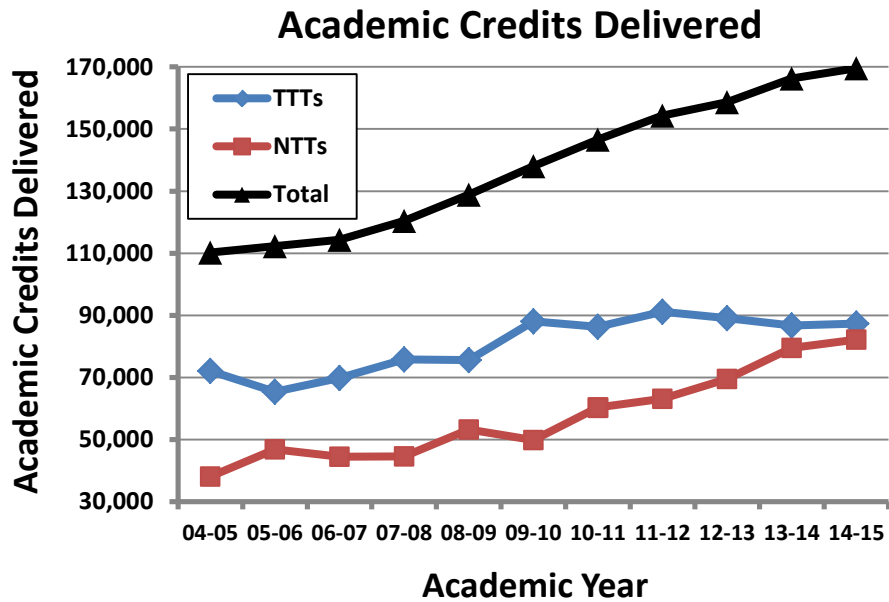
In 2004-05: **2.9 to 1**

In 2014-15: **1.7 to 1**

Changes in the Number of Faculty and Credits: Fall 2004 to Spring 2015



Academic Credits Delivered by TTTs and NTTs : Fall 2004 to Spring 2015



Undergrad Credits

(145,359)

TTTs: 49.2%

NTTs: 50.8%

Graduate Credits

(24,154)

TTTs: 65.4%

NTTs: 34.6%

Division-by-Division Credit Delivery (2014-15)

Division	Credits Delivered	% Credits Delivered by TTTs
Arts and Sciences	(ug: 88,022)	(ug: 45.3%)
	(grad: 6,919)	(grad: 76.0%)
	94,941	47.6%
Engineering	(ug: 44,344)	(ug: 63.1%)
	(grad: 11,113)	(grad: 71.3%)
	55,457	64.7%
Business	(ug: 6,599)	(ug: 49.8%)
	(grad: 6,066)	(grad: 43.0%)
	12,665	46.5%
IGSD	(ug: 3,671)	(ug: 11%)
	(grad: 7)	(grad: 0%)
	3,678	11.0%
Other	(ug: 2,723)	(ug: 0%)
	(grad: 49)	(grad: 0%)
	2,772	0.0%
Total	(ug: 145,359)	(ug: 49.2%)
	(grad: 24,154)	(grad: 65.4%)
	169,513	51.5%

Arts and Sciences: Dept.-by-Dept. Credit Delivery (2014-15)

Department	Credits Delivered	% Credits Delivered by TTTs
Biology and Biotechnology	6,611	68.0%
Chemistry and Biochemistry	9,108	37.6%
Computer Science	19,871	52.1%
Humanities & Arts	21,991	47.9%
Mathematics	23,424	41.4%
Physics	8,155	38.9%
Social Sciences	5,777	60.3%
Total	94,937	47.6%

Engineering: Dept.-by-Dept. Credit Delivery (2014-15)

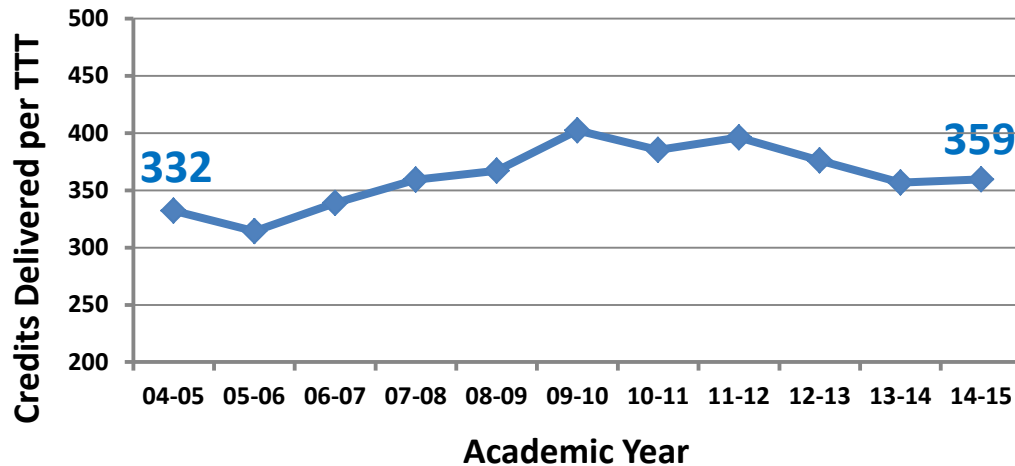
Department	Credits Delivered	% Credits Delivered by TTTs
Biomedical	4,733	68.6%
Civil and Environmental	6,389	66.1%
Chemical	5,666	73.7%
Electrical and Computer	12,680	64.7%
Fire Protection	1,589	67.1%
Mechanical	24,397	64.7%
Total	55,454	67.1%

C.P.E. Credit Delivery (2014-15)

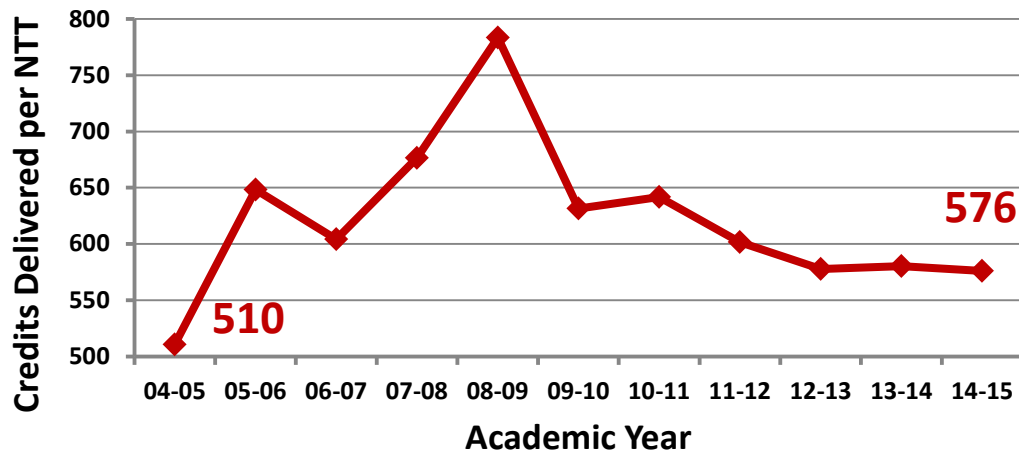
Department	Credits Delivered	% Credits Delivered by TTTs
CPE	3,738	27.0%

Credits Delivered per Faculty Member: Fall 2004 to Spring 2015

Credits Delivered per TTT



Credits Delivered per (FTE) NTT



Credit Distribution by TTT Rank 2014-15

Rank	Number	Credits Delivered	Credits Delivered per Faculty
Assistant Professor	95	30,619	322
Associate Professor	72	30,202	419
Full Professor	73	26,423	362
Total	240	87,244	364

Glance at the Most Recent Changes: Fall 2014 to Fall 2015

	Fall 2014	Fall 2015	Percent Increase (2014 to 2015)
FTE Undergraduate Students*	4150	4213	1.5 %
FTE Graduate Students*	1284	1366	6.4%
Number of TTTs	243	248	2.0 %
Number of (FTE) NTTs	143	163	13.9 %

*From WPI's "Common Data Set" 2014-15 and 2015-16

Has the fraction of overall credits delivered by TTTs dipped below 50%?

Summary and Questions

- Summary: From Fall 2004 to Spring 2015
 - Student credit enrollments have increased by **54%**
 - Tenured and Tenure-Track Faculty:
 - Headcount has increased by **12%**
 - Fraction of total credits delivered has decreased from **65%** to **51%**
 - Load (in credits) per TTT has increased by **8%**
 - Non-Tenure Track Faculty:
 - FTEs have increased by **91%**
 - Fraction of total credits delivered has increased from **35%** to **49%**
 - Load (in credits) per (FTE) NTT has increased by **13%**
- Questions (for full discussion...):
 - How can WPI meet its commitment to increase the TTT Faculty at a rate commensurate with the University's growth and strategic goals?
 - What is the goal for the size of the TTT Faculty
 - How will we get there?

Back-of-the-Envelope Projection: Teaching

TTTs needed to deliver 60 percent of academic credits:

- Assumptions:
 - the total number of credits delivered stays at **170,000**
 - credits per TTT stays at **360**
- Proposed:
 - the total number of credits delivered by TTTs ($= 170,000 \times .6$) = **102,000**
 - additional credits delivered by TTTs ($= 102,000 - 87,000$) = **15,000**
- Additional TTTs Required:
 - the total number of TTTs required ($= 102,000 / 360$) = **283**
 - Additional TTTs required (283 - 243) = 40**

Back-of-the-Envelope Projection: Funded Research

TTTs needed to increase research awards by 50 percent in three years (Strategic Plan):

- Current:
 - total annual research awards = **\$35M**
 - research awards per TTT (= $\$35M / 250$) = **\$140,000**
- Proposed by Year #3:
 - total annual research awards (= $\$35M \times 1.5$) = **\$52.5M**
 - additional annual research awards (= $\$52.5M - \$35M$) = **\$17.5M**
- Annual Effects of TTT Attrition and Replacement (assumptions...):
 - there is 5% annual turnover in TTTs (= $250 \times .05$) = **12.5 TTTS** (must be replaced)
 - outgoing TTTs remove ($\$50K \times 12.5$) = **\$625,000** in research awards annually
 - replacement TTTs add (= $\$200K \times 12.5$) = **\$2.5M** in research awards annually
 - net gain in annual research awards ($\$2.5M - \$625K$) = **\$1.875M**
- Three-year Effects of TTT Attrition and Replacement (assumptions...):
 - net gain in annual research awards ($\$1.875M \times 3$) = **\$5.6M**
- Additional TTTs Required:
 - additional research awards required (= $\$17.5M - \$5.6M$) = **\$11.9M**
 - Additional TTTs required** ($\$11.9M / \$280K$) = **42** (= 17 percent increase in TTT size!)

Let's
Think Big!