Teaching and Academic Support

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Pittsburgh Council on Higher Education (PCHE) and Pittsburgh Filmmakers: Units both taught by PCHE schools and taken by PCHE students are collected through the Student Information System (SIS)

Units Taught: Student Information System (SIS)

Definitions:

PCHE: Pittsburgh Council on Higher Education - a voluntary, multi-purpose consortium of the ten accredited colleges and universities in Allegheny County, Pennsylvania. As part of the consortium agreement, full-time graduate or undergraduate students at each PCHE school can cross-register at any other PCHE school at no additional expense.

Pittsburgh Filmmakers: Carnegie Mellon students are eligible to take courses at Pittsburgh Filmmakers at no additional expense

Units Taught:

Academic Year: Consists of the fall and spring semesters of a given academic year

Level: Based on the level of the student taking the course

Other: Includes units taught to special, non-degree students, and students from other colleges attending Carnegie Mellon through the Pittsburgh Council of Higher Education (PCHE)

Units: A student earns a specified number of units for each course taken at the university. Three (3) units are the equivalent of one (1) credit hour. The total units taught by a department are calculated by summing the units taken by each student for each course taught by the department.

Academic Development
Academic Years 2011-12 to 2015-16

Academic Development's mission is to assist students in developing the skills, strategies, and behaviors needed to perform as confident, independent, and active learners. Services are designed to help both students who are having academic difficulties and those who just want to improve their performance. Currently four programs are available to assist students: Supplemental Instruction, Peer Tutoring, Academic Counseling, and EXCEL Collaborative Learning Groups.

The Supplemental Instruction (SI) program offers review sessions for traditionally difficult courses. Sessions are offered two times each week for targeted courses and are conducted by students who have previously done well in the course. Designed to supplement, not replace, class lectures and TA recitations, the sessions are interactive, student-friendly, and attendance is voluntary.

	2011-12	2012-13	2013-14	2014-15	2015-16
Unique courses supported with SI	12	13	13	12	12
Total course enrollment	2,022	1,877	1,780	1,715	1,866
Number of SI sessions	470	538	541	489	499
Unique student SI attendance	1,055	1,242	1,255	1,308	1,366
Total student contacts	5,616	5,515	7,265	8,702	8,098
Total student contact hours	10,098	10,337	12,673	15,147	13,815
Percent of students attending SI	61%	66%	71%	76%	73%

Walk-in peer tutoring offers subject-specific tutoring geared primarily (but not exclusively) towards large introductory level courses. During the fall and spring semesters, tutoring is conducted on a walk-in basis Sunday through Thursday evenings and on selected afternoons. Standing appointments are available upon student request for various university courses. After completing a tutor request form students meet weekly with a peer tutor to discuss and review course content.

	2011-12	2012-13	2013-14	2014-15	2015-16
Walk-in tutoring contacts	4,859	5,519	5,383	5,446	4,763
Standing appointment contact hours	4,217	3,900	3,447	3,549	2,972

Academic Counseling provides both group and individual study skills instruction. Group workshops are available several times each semester and cover topics such as time management and exam preparation. Students interested in individual appointments are first given a study skills assessment. Students who require additional help can meet individually with an academic counselor. Workshops are open to all students.

	2011-12	2012-13	2013-14	2014-15	2015-16
Number of study skills assessments	120	128	101	107	179
Number of unique students meeting with counselors	143	136	113	117	168
Total individual appointments	888	1,057	636	768	1,005
Total workshop attendance	403	457	381	778	838
Total workshop count	25	23	18	23	25
Total contacts	2,061	2,291	1,120	1,663	2,025

EXCEL Groups are facilitated by a trained peer leader and offer students the opportunity for extra practice and review in a collaborative learning environment. Groups meet once weekly and are formed on an as-needed-basis with multiple groups per course.

	2011-12	2012-13	2013-14	2014-15	2015-16
Number of courses supported	21	26	19	26	25
Total course enrollment	2,678	3,158	2,463	3,409	3,302
Number of sessions	562	1071	1160	1,600	1,477
Number of students attending	359	571	553	700	863
Cumulative student contact hours	2543	4,617	6,461	10,017	11,922

Cumulative data include students each time they attend.

The Intercultural Communication Center (ICC) provides language support services to all nonnative English speakers at Carnegie Mellon.

Mission

Provide support to help nonnative English speakers, both undergraduate and graduate, succeed in their academic programs
ICC offers over 37 classes, workshops, and seminars as well as individual tutoring throughout the academic year and summer. Students can also have a placement interview for individual feedback on language skills and recommended ICC support.

Help international teaching assistants and faculty develop the skills needed to provide effective instruction at Carnegie Mellon
ICC provides training for nonnative English speakers preparing for teaching assistant jobs and also assesses speaking fluency before nonnative English speakers can work as TAs (required by Carnegie Mellon University policy and Pennsylvania law). ICC also assists international faculty with development language skills and/or culturally appropriate teaching skills.

Help both the university and departments identify and respond to the changing needs of nonnative English speakers and international students
ICC also runs workshops for domestic faculty, staff and students to help them learn to communicate more effectively with nonnative English speakers.

Clients served

	2011-12	2012-13	2013-14	2014-15	2015-16
Undergraduate	41	30	48	51	65
Graduate	841	1061	1029	1,103	1,319
Faculty and Visiting Researchers	26	16	11	15	54

Assessments and instructional hours

	2011-12	2012-13	2013-14	2014-15	2015-16
ITA tests	354	412	486	551	684
Language Support Check-ins	528	834	748	834	1,183
Instructional hours	10,334	10,906	11,954	10,947	8,579

While both the overall number of students and the number of ITA tests have steadily increased, class contact hours have declined:
1. To better accommodate department needs and students' schedules we reduced the number of class hours required for students in the provisional categories of the ITA test requirements.
2. As ITA testing hours have increased, the resources available for teaching hours have decreased.

Pittsburgh Council on Higher Education (PCHE) and Pittsburgh Filmmakers
Academic Year 2015-16

The Pittsburgh Council on Higher Education (PCHE) is a voluntary, multi-purpose consortium of the ten accredited colleges and universities in Allegheny County, Pennsylvania. Founded in 1966, the membership includes Carlow University, Carnegie Mellon University, Chatham University, Community College of Allegheny County, Duquesne University, La Roche College, Pittsburgh Theological Seminary, Point Park University, Robert Morris University, and the University of Pittsburgh. The purpose of PCHE is to provide a means for sharing resources, insights, and information among the member institutions; to engage in joint or cooperative activities and projects; and to offer a common voice on matters that affect all of the member institutions. As part of the consortium agreement, full-time undergraduate and graduate students at each PCHE school can cross-register at any other PCHE school at no additional expense to the student.

Units taken by Carnegie Mellon students at PCHE Schools by student level

Student's college affiliation	Undergraduate	Graduate	Total
CFA	168	87	255
CIT	246	126	372
DC	126	234	360
HC	0	129	129
Interdisciplinary	36	0	36
MCS	213	147	360
SCS	30	147	177
TSB	9	54	63
TOTAL	828	924	1,752

PCHE School	Undergraduate	Graduate	Total
Carlow University	0	9	9
Chatham University	9	0	9
Duquesne University	30	6	36
University of Pittsburgh	789	909	1,698
TOTAL	828	924	1,752

Units taught by Carnegie Mellon to PCHE students

College	Total
CFA	93
CIT	500
DC	741
HC	114
Interdisciplinary	15
MCS	565
SCS	558
TSB	282
Other	1,356
TOTAL	4,224

Units taken by Carnegie Mellon students at Pittsburgh Filmmakers by student level

	Undergraduate	Graduate	Non-degree	Total
Pittsburgh Filmmakers	225	36	0	261

Units Taught by College and Student Level
Academic Years 2011-12 to 2015-16

College	Level	2011-12	2012-13	2013-14	2014-15	2015-16
CFA	Undergraduate	90,284	85,666	84,171	88,224	78,871
	Graduate	26,532	28,840	30,966	34,008	29,146
	Other	1,503	849	204	220	221
	TOTAL	**118,319**	**115,355**	**115,341**	**122,452**	**108,238**
CIT	Undergraduate	84,363	83,368	83,772	83,927	80,190
	Graduate	119,629	136,441	146,777	153,865	134,631
	Other	749	580	384	542	689
	TOTAL	**204,741**	**220,389**	**230,933**	**238,334**	**215,509**
DC	Undergraduate	165,524	163,087	161,014	166,642	168,097
	Graduate	24,218	23,804	22,448	24,059	24,727
	Other	1,764	1,233	1,371	1,884	1,500
	TOTAL	**191,506**	**188,124**	**184,833**	**192,585**	**194,324**
HC	Undergraduate	1,521	1,158	1,590	1,323	975
	Graduate	99,915	108,047	114,120	116,327	114,514
	Other	222	372	216	345	180
	TOTAL	**101,658**	**109,577**	**115,926**	**117,995**	**115,669**
Interdisc	Undergraduate	13,439	12,830	14,221	15,061	14,118
	Graduate	18,103	19,428	17,241	19,661	23,332
	Other	72	99	39	33	31
	TOTAL	**31,614**	**32,357**	**31,501**	**34,755**	**37,481**
MCS	Undergraduate	108,127	106,424	102,289	106,430	108,110
	Graduate	21,664	23,240	23,731	23,825	20,654
	Other	825	788	1159	1,074	912
	TOTAL	**130,615**	**130,452**	**127,178**	**131,329**	**129,676**
SCS	Undergraduate	57,860	62,350	70,485	80,331	76,962
	Graduate	86,736	99,452	112,343	146,106	147,852
	Other	1,295	1,167	1,155	1,085	1,250
	TOTAL	**145,891**	**162,969**	**183,983**	**227,522**	**226,064**
TSB	Undergraduate	37,781	41,124	42,825	43,272	46,559
	Graduate	71,365	74,202	74,289	75,837	79,005
	Other	705	573	396	705	633
	TOTAL	**109,851**	**115,899**	**117,510**	**119,814**	**126,197**
Other	Undergraduate	4,730	5,303	4,907	5,091	4,866
	Graduate	1,907	1,649	1,650	1,349	1,760
	Other	1,143	1,128	1,272	1,359	1,376
	TOTAL	**7,780**	**8,080**	**7,829**	**7,799**	**8,002**
GRAND TOTAL	**Undergraduate**	**563,628**	**561,309**	**565,273**	**590,300**	**578,747**
	Graduate	**470,068**	**515,103**	**543,565**	**595,037**	**575,621**
	Other	**8,278**	**6,789**	**6,196**	**7,247**	**6,792**
	TOTAL	**1,041,974**	**1,083,201**	**1,115,034**	**1,192,584**	**1,161,159**

Units Taught by College, Department, and Student Level
Fall Semester 2015 and Spring Semester 2016

College	Department	Fall 2015				Spring 2016			
		UG	Grad	Other	Total	UG	Grad	Other	Total
CFA	Architecture	7,523	3,214	0	**10,737**	7,709	2,609	10	**10,328**
	Art	6,097	1,027	20	**7,144**	5,500	1,049	0	**6,549**
	Center for the Arts in Society	0	0	0	**0**	63	0	0	**63**
	Design	5,667	2,322	42	**8,031**	5,447	1,843	17	**7,306**
	Drama	10,049	3,449	15	**13,513**	9,649	3,377	0	**13,026**
	Interdisciplinary	1,864	28	0	**1,892**	2,198	60	6	**2,264**
	Music	9,451	5,287	54	**14,792**	7,656	4,882	57	**12,595**
	TOTAL	**40,650**	**15,327**	**131**	**56,108**	**38,221**	**13,820**	**90**	**52,130**
CIT	Biomedical Engineering	2,625	4,190	21	**6,836**	3,568	3,684	84	**7,336**
	Chemical Engineering	4,862	6,807	60	**11,729**	5,251	5,320	105	**10,676**
	Civil and Environmental Engineering	3,846	8,619	12	**12,477**	3,354	6,132	36	**9,522**
	Electrical and Computer Engineering	11,716	25,960	72	**37,748**	11,221	20,477	24	**31,722**
	Engineering and Public Policy	640	3,916	36	**4,592**	1,758	4,596	36	**6,390**
	Information and Communication Technology	0	1,308	0	**1,308**	0	1,164	0	**1,164**
	Information Networking Institute	0	5,886	12	**5,898**	30	3,144	12	**3,186**
	Interdisciplinary	627	774	0	**1,401**	791	561	9	**1,361**
	Materials Science and Engineering	4,206	5,759	0	**9,965**	3,288	4,744	48	**8,080**
	Mechanical Engineering	11,448	11,826	63	**23,337**	10,959	9,764	59	**20,782**
	TOTAL	**39,970**	**75,045**	**276**	**115,290**	**40,220**	**59,586**	**413**	**100,219**
DC	Center for Neural Basis of Cognition	201	411	51	**663**	0	348	0	**348**
	Dietrich College	111	0	0	**111**	138	0	0	**138**
	Economics	9,491	72	0	**9,563**	7,065	0	9	**7,074**
	English	16,338	3,181	81	**19,600**	14,415	2,541	135	**17,091**
	History	10,239	738	99	**11,076**	11,250	732	63	**12,045**
	Information Systems	5,508	6	0	**5,514**	3,909	15	0	**3,924**
	Institute for Politics and Stategy	1,554	132	9	**1,695**	1,626	108	9	**1,743**
	Interdisciplinary	768	0	0	**768**	381	0	0	**381**
	Modern Languages	9,519	1,110	165	**10,794**	8,631	1,113	111	**9,855**
	Philosophy	5,445	1,227	93	**6,765**	6,895	1,224	51	**8,170**
	Psychology	11,935	1,209	111	**13,255**	11,399	1,226	174	**12,799**
	Social and Decision Sciences	3,987	704	60	**4,751**	3,476	713	99	**4,288**
	Statistics	11,231	4,833	75	**16,139**	12,585	3,084	105	**15,774**
	TOTAL	**86,327**	**13,623**	**744**	**100,694**	**81,770**	**11,104**	**756**	**93,630**

College	Department	Fall 2015				Spring 2016			
		UG	Grad	Other	Total	UG	Grad	Other	Total
HC	Creative Enterprise	54	2,854	12	**2,920**	84	2,821	18	**2,923**
	Heinz College	108	15,225	12	**15,345**	105	6,942	24	**7,071**
	Information Systems	120	28,818	24	**28,962**	96	25,419	36	**25,551**
	Medical Management	0	2,190	0	**2,190**	0	2,313	0	**2,313**
	Public Management	0	1,296	0	**1,296**	0	1,386	6	**1,392**
	Public Policy and Management	210	12,671	12	**12,893**	198	12,579	36	**12,813**
	TOTAL	**492**	**63,054**	**60**	**63,606**	**483**	**51,460**	**120**	**52,063**
Interdisc	BXA Program	381	0	0	**381**	604	0	0	**604**
	Entertainment Technology	367	7,085	12	**7,464**	714	6,645	12	**7,371**
	Integrated Innovation Institute	60	5,395	0	**5,455**	0	3,978	0	**3,978**
	International Education	972	0	0	**972**	810	0	0	**810**
	StuCo (Student Led Courses)	1,329	72	3	**1,404**	2,007	96	0	**2,103**
	Universitywide Studies	5,765	37	0	**5,802**	1,109	24	4	**1,137**
	TOTAL	**8,874**	**12,589**	**15**	**21,478**	**5,244**	**10,743**	**16**	**16,003**
MCS	Biological Sciences	7,847	2,491	193	**10,531**	7,471	2,460	243	**10,174**
	Chemistry	9,613	3,356	72	**13,041**	7,948	3,125	41	**11,114**
	Interdisciplinary	1,242	0	0	**1,242**	15	91	0	**106**
	Mathematical Sciences	28,109	1,899	100	**30,108**	22,581	1,839	87	**24,507**
	Physics	11,763	2,690	116	**14,569**	11,521	2,703	60	**14,284**
	TOTAL	**58,574**	**10,436**	**481**	**69,491**	**49,536**	**10,218**	**431**	**60,185**
SCS	Computational Biology	158	3,867	99	**4,124**	483	1,367	84	**1,934**
	Computer Science	31,256	21,288	210	**52,754**	28,465	17,533	192	**46,190**
	Human-Computer Interaction	3,432	7,458	12	**10,902**	3,300	6,657	72	**10,029**
	Institute for Software Research	307	11,636	66	**12,009**	339	10,350	44	**10,733**
	Language Technologies Institute	342	12,577	72	**12,991**	933	12,577	54	**13,564**
	Machine Learning	996	9,188	93	**10,277**	2,271	7,891	156	**10,318**
	Robotics	1,981	13,515	72	**15,568**	2,699	11,948	24	**14,671**
	TOTAL	**38,472**	**79,529**	**624**	**118,625**	**38,490**	**68,323**	**626**	**107,439**
TSB	Business Administration	21,227	63	153	**21,443**	25,206	54	180	**25,440**
	School of Business	108	44,256	138	**44,502**	18	34,632	162	**34,812**
	TOTAL	**21,335**	**44,319**	**291**	**65,945**	**25,224**	**34,686**	**342**	**60,252**
Other		**2,386**	**944**	**654**	**3,984**	**2,480**	**816**	**722**	**4,018**
GRAND TOTAL		**297,080**	**314,865**	**3,276**	**615,221**	**281,668**	**260,756**	**3,516**	**545,939**

Library Collections and Utilization
Fiscal Years 2012 to 2016

University Libraries

Hunt Library - Subjects: Arts, Business, Humanities, and Social Sciences. Departments and Units include Acquisitions; Archives/Digital Library Initiatives; Arts and Special Collections, including Architecture Archives, Arts Reference, Audio Collection, Fine and Rare Book Room, and Visual Resources Collection; Cataloging; Dean's Office/Business Services; Hunt Library Reference; Library Information Technology, including Operations and R&D; Access Services, including Circulation and Reserves, Interlibrary Loan, Periodicals, and Video Collection. Also located in Hunt Library: Computing Services Cluster; Hunt Institute for Botanical Documentation, including Hunt Botanical Library and Gallery; and Osher Lifelong Learning Institute
Mellon Institute Library - Subjects: Chemistry and Biology
Off-site Storage - Older, infrequently-used library materials are available by request (24-hour turnaround)
Posner Center - Featuring Posner Memorial Collection of rare books and artifacts; and collection exhibits
Sorrells Library - Subjects: Computer Science, Engineering, Mathematics, Physics, Science, and Technology
Qatar Library - Subjects: Biological Sciences, Business Administration, Computational Biology, Computer Science, and Information Systems
Other Carnegie Mellon Libraries: Hunt Botanical Library and Gallery, Research Library, Botany and Art; Software Engineering Institute Library, Research Library: Security, Software, and Technology; and Universal Digital Library, digitized media in all genres and subject areas, such as books, images, journals, music, etc.

	2012	**2013**	**2014**	**2015**	**2016**
Library collections					
Total print volumes (books, bound journals, etc.)	1,133,552	1,135,896	1,107,780	1,063,592	1,064,283
Current subscriptions	1,472	1,396	1329	1,283	1,189
Electronic subscriptions	135,166	116,070	139,875	138,723	123,027
Research Showcase Documents	9,921	11,388	12,690	16,549	16,798
Microforms (books, serial titles, govt documents)	1,164,984	1,190,732	1,192,751	1,192,560	1,204,716
Unmounted pictures and slides	142,376	40,904	40,904	16,416	0
Audio materials (cassettes, records, CD's)	28,933	29,160	29,465	29,815	28,290
Video materials	13,843	13,948	13,992	14,121	14,243
Music scores	19,269	19,195	18,998	18,998	18,998
Maps	161	161	161	161	161
Library material duplication					
Microform copies and scans made in libraries	12,858	12,269	10,995	6,037	6,569
Pages printed from public laser printers	2,492,554	2,053,753	2,312,570	1,597,363	1,582,540
Number of visits					
Hunt Library	599,469	588,527	651,818	631,394	667,437
Posner Center	1,456	1,325	1,099	926	863
Sorrells Library	195,638	217,927	292,141	367,028	421,404
Total	**796,563**	**807,779**	**945,058**	**999,348**	**1,089,704**
Seating					
Hunt Library	720	720	502	608	616
Mellon Institute Library	112	112	99	107	107
Sorrells Library	165	165	216	268	266
Total	**997**	**997**	**817**	**983**	**989**

	2012	2013	2014	2015	2016
Circulation of library materials	94,747	108,460	87,910	76,186	56,840
Books used in libraries	27,634	25,095	22,225	17,961	14,632
Library instruction					
Number of classes	159	182	167	163	144
Number of participants	3,484	3,748	4,351	3,005	3,231
Reference questions answered					
Digital	2,774	2,653	1,591	829	1,495
Traditional	7,506	6,235	10,438	2,287	1,106

Electronic information resources and access

The University Libraries provide access to a variety of digital information, including the library catalog, other local databases, and a growing number of commercial databases that are licensed for use by the university community. Access methods continue to change as the delivery of electronic information evolves. Currently, Internet access predominates.

The web-based library catalog (Cameo) contains records of items owned by the libraries, as well as items on order or being catalogued for library collections. Cameo is part of a system that integrates acquisitions and cataloging functions with circulation, reserve, and user service functions. Users can see whether items are available or checked out when they use the library catalog; they can also request services.

As the digital library environment matures, more full-text documents and images are becoming available. Some vendors who are providing full-text documents are no longer reporting numbers of searches.

	2012	2013	2014	2015	2016
Total full-text docs retrieved from licensed resources	1,682,281	1,577,220	1,946,199	2,868,470	4,906,399
Documents downloaded from Research Showcase	248,585	961,502	963,953	1,177,014	1,288,587
Reserve items used					
Digital text *	10,946	7,449	4,497	2,228	n/a
Traditional	1,593	3,833	4,724	3,216	2,988
Interlibrary loan					
Items borrowed	13,850	12,071	10,768	7,930	7,659
Items loaned	4,795	6,175	5,868	3,838	4,599
PALCI (PA Academic Library Consortium, Inc.)					
Items borrowed	2,124	2,216	1,865	1,563	1,470
Items loaned	692	1,903	1,866	1,897	1,980

* Increasing numbers of documents are now stored in Blackboard

Computing Services
Academic Years 2011-12 to 2015-16

Computing Services supports the university's research and educational missions by:
  Building and maintaining basic and advanced communications infrastructure
  Building and maintaining basic and advanced middleware infrastructure and directory services
  Maintaining central computing labs and associated printing
  Deploying and maintaining shared e-mail and web services
  Deploying and maintaining enterprise administrative applications
  Working with faculty to design and teach Computing at Carnegie Mellon and providing instructional technology
  Monitoring the security and fair use of our network and protecting it against abuse and attack
  Providing policy, guidance, consultation, tools, security systems training, and information
  Supporting university efforts to provide emergency notification and business continuity plans
  Answering technical computing related questions at our Help Center
  Developing and maintaining an extensive on-line collection of computing related documentation

Academic spaces	2011-12	2012-13	2013-14	2014-15	2015-16
Virtual desktops via virtual Andrew	100	100	100	100	100
Physical computers	405	376	373	362	362
Traditional computer labs	13	12	12	12	12
Multimedia computer labs	3	3	3	3	3
Collaborative computer labs	2	3	3	3	3
Technology-equipped classrooms	85	86	86	86	80

Andrew printing	2011-12	2012-13	2013-14	2014-15	2015-16
Number of printers	33	33	38	46	49
Pages printed (in millions)	7	7.4	7	7	7

Web stations	2011-12	2012-13	2013-14	2014-15	2015-16
Number of stations	16	18	18	18	21

Classroom technologies	2011-12	2012-13	2013-14	2014-15	2015-16
Clicker-equipped classrooms	26	27	27	27	26
Clickers, instructor kit	68	68	68	66	66
Clickers, classroom kit	5	5	5	5	5

Media production and event support	2011-12	2012-13	2013-14	2014-15	2015-16
Total course sessions and event sessions captured	581	573	784	1610	1,487
Total events supported	1,257	1,362	1,219	1,214	1,518

Videoconferencing	2011-12	2012-13	2013-14	2014-15	2015-16
Classrooms	7	6	7	7	7
Conference rooms	17	17	17	23	23
Hours	2,202	1,848	1,688	1,748	1,603

Help center	2011-12	2012-13	2013-14	2014-15	2015-16
Number of walk-in users	2,044	3,006	3,401	2,977	2,091
Number of phone requests	5,660	5,215	6,864	5,026	4,646
Number of e-mail requests	17,194	19,496	23,916	16,522	17,035

Electronic mail	2011-12	2012-13	2013-14	2014-15	2015-16
Average weekly e-mails sent by cmu.edu	595,302	446,406	405,559	401,765	393,688
Average weekly e-mails from outside cmu.edu	1,082,010	1,201,553	1,320,161	1,693,940	1,915,505
Average weekly e-mails blocked (virus, spam)	656,350	456,120	1,070,293	1,621,167	1,443,860

Infrastructure servers	2011-12	2012-13	2013-14	2014-15	2015-16
Virtual machines	863	1,148	1,274	1,432	1,614