

Business Schools, Student/Teacher Ratio and Concerns for Learning: Evidence from Canada

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The classroom teaching workload, i.e., student/teacher ratio, in any university academic unit can affect the teaching and student learning that takes place. The more students that a teacher has to cope with in the classroom, the more the teaching is likely to be standardised to textbook knowledge-only for time-saving delivery and learning assessment. We explore teaching workloads in business schools compared with other Canadian and United States university academic units to discuss concerns for learning.

INTRODUCTION

In Canada, in 2009-10, 39,800 Bachelor's and 13,600 Master's degrees in business, management and public administration were awarded (*CAUT Almanac of Post-Secondary Education in Canada, 2011-2012*) accounting for approximately 20% of total bachelor's degrees awarded, and 30% of total master's degrees in Canada. During the same period, in the United States, 358,293 Bachelor's and 177,684 Master's degrees in business were awarded (National Center for Education Statistics (NCES), 2012), accounting for 22% of total university Bachelor's degrees awarded, and 25% of total Master's degrees. These figures are in line with historical levels in North America over the past thirty years, where business and management degrees have constituted at least 20% of master's and bachelor's degrees awarded by universities each year (NCES, 2012).

Concerns that business school graduates and programming have been lacking relevance to the real-world of corporate management have been continuing for over thirty years. For example, Porter & McKibbin, (1987) made recommendations for more relevant programming, including increased emphasis on so-called "soft skills", i.e., interpersonal, teamwork and leadership skills. The Association to Advance Collegiate Schools of Business (AACSB) report, *Management Education at Risk*, (2002) indicated that concerns for relevance were still continuing. Moreover, the AACSB went on to publish its *Eligibility Procedures and Standards for Business Accreditation (A-EPSBA)*, (2003-2012), aimed towards bringing about more real-world relevant programming in accredited schools. Concerns regarding the relevance of business school programs and programming have continued to be raised (Pfeffer & Fong, 2002; Doria, Rozanski & Cohen, 2003; Mintzberg, 2004; Bennis & O'Toole, 2005; *Business Week*, 2006, 2008; *Canadian Business*, 2006; Muff, 2012).

The notion of "relevance" can be seen as having two components: Competence based on basic knowledge and situational analytical thinking, as well as moral awareness and societal responsibility.

Regarding competence, the curricula of top-(media) ranked schools have become subject to critique (Rynes, Trank, Lawson & Ilies, 2003; Navarro, 2008). More generally, Rubin & Dierdorff, (2009), studied 373 MBA programs in the United States, and concluded that the competences indicated by managers to be most needed in real-world practice were those least represented in program curricula. Regarding undergraduate programs, Arum & Roksa, (2011) reported a study of the performance of undergraduate students at twenty-four United States colleges and universities in writing the Collegiate Learning Assessment (CLA), a national test that assesses students' writing and reasoning skills. Business students' scores improved significantly less than students in other disciplines studied and it can be inferred that for over fifty percent of business students their "*gains in critical thinking, complex reasoning and written communication are either exceedingly small or empirically non-existent*" (Arum & Roksa, 2011, p.121).

Regarding moral and societal responsibility, it has been apparent for some time that some corporate managers have been acting to maximise their mercenary self-interests at the expense of corporations and their stakeholders over the last thirty years. For example, Hayes & Abernathy, (1980) described short-sighted and self-serving behaviours of corporate managers and their adverse effects on corporations. The decline of manufacturing in the United States described by Dertouzos, Lester & Solow (1989) was also seen as a failure of corporate social responsibility.

Business school management education has been seen as sharing responsibility, if not blame, for these self-interested manager practises. Leavitt (1986 p.10) wrote that: "*The new professional MBA-type manager began to look more and more like the professional mercenary soldier...*" According to Saul (1993 p.118) "...*what (business schools) are really talking about is the training of managers who can do anything, for anybody, anywhere. That is the description of a mercenary or condottiere.*" Khurana (2007, p.323) wrote that, in American business schools, "*Agency theory dissolved the idea that executives should be held ...to any standard stricter than sheer self-interest*".

Carrol & Mui, (2008, p.2) have chronicled corporate failures in the United States, "*Since 1981, 423 U.S. companies with assets of more than \$500 million filed for bankruptcy*". Business school graduate managers and executives pursuing their short-term mercenary self-interests may have been responsible for these failures. Certainly, they have been blamed for the institutional bankruptcies and the general financial "meltdowns" in the United States and other countries in the Fall of 2008 (*Business Week*, 2008a, b). For example, *Business Week*, (2009) questioned whether MBA graduates were "Public Enemy No.1?" and *The Economist*, (2009) accused business schools of "*churning out jargon-spewing economic vandals*." According to Mintzberg (2009, p.A11), "*Now, a great deal of (American management) is just plain rotten – detached and hubristic*". Mintzberg (2009) further asserted that through their classroom teaching, business schools have been promoting an excessively analytical, detached style of management, and hubris, i.e., insolent or offensively contemptuous pride or presumption.

It does not, however, appear sensible that, for at least thirty years, North American university business schools generally have been actively choosing to produce graduates apparently lacking managerial competence and societal responsibility. We suggest, therefore, that there must be, in practice, some longstanding and powerful organizational drivers adversely affecting programming and/or classroom teaching in business schools.

The classroom teaching workload, i.e., student/teacher ratio, in any university academic unit can affect the teaching and student learning that takes place. The more students that a teacher has to cope with in the classroom and, in some institutions, with little or no assistance or support, the more the teaching is likely to be standardised to textbook knowledge-only for time-saving delivery and learning assessment. Generally, the same would seem to hold true in a vast majority of North American business schools. Perhaps large classes have been institutionalised in business schools and individual teachers have been coping by designing-out of their classroom teaching the situational analytical and critical thinking needed for developing real-world competence and societal responsibility.

STUDENT NUMBERS, RESOURCE ALLOCATIONS AND ACADEMIC UNIT WORKLOADS IN CANADIAN UNIVERSITIES

An academic unit's yearly teaching requirement is the total number of student registrations in courses offered by the unit. This includes students majoring in the unit's degree programs and also those who are taking courses but who have not declared majors or are majoring in other subjects. The yearly total student registrations in a unit can be compared with its yearly operating budget allocation for teaching support to calculate the budget dollars per student registration. This also is an expression of university administrators' strategy implementation, i.e., resourcing of the unit relative to its programs and the number of student registrations it is required to accommodate. The ratio of student registration numbers versus resources for teaching is the measure of teaching workload for the unit and for its teachers: the more students per teacher, the higher the workload.

Information needed to calculate budget dollars per student registration for academic units in Canadian universities appears not to be easily found. However, the *CAUT Almanac of Post-Secondary Education, 2012-2013* provides Canadian data on student enrolments and degrees awarded in subject disciplines, in 2009-2010, along with numbers of university teachers in these disciplines, in 2010-2011. Table 1 includes these data and numbers of student enrolments and degrees awarded per university teacher are calculated for each discipline.

In 2009-10, business and management disciplines accounted for 15.7% of total university enrolments and 21.8% of degrees awarded. In 2009-10, enrolments and degrees awarded in the disciplines of Architecture, Engineering and Related Technologies; Mathematics, Computer and Information Sciences, and Physical and Life Sciences together accounted for 21.5% of total university degree enrolments and 18.3% of total degrees awarded.

TABLE 1
COMPARISON OF NUMBERS OF DEGREE ENROLMENTS AND DEGREES AWARDED,
2009-2010, WITH NUMBERS OF UNIVERSITY TEACHERS, 2010-2011, BY MAJOR
SUBJECT DISCIPLINE IN CANADA

Major Degree Discipline (Note 1)	Degree Enrolments, 2009-2010 (Note 2)		Degrees Awarded, 2009-2010 (Note 3)		Full-Time University Teachers, 2010-2011 (Note 4)		Nos. of FTE Degree Enrolment, <u>2009-2010</u> / Nos. of Full-Time University Teachers, 2010-2011	Nos. of Degrees Awarded, <u>2009-2010</u> / Nos. of Full-Time University Teachers, 2010-2011
	Nos.	% of Total	Nos.	% of Total	Nos.	% of Total		
Agric, Nat Res & Cons	14,764	1.6	3,972	1.6	891	2.1	16.6	4.5
Arch, Eng'g & Rel'd Techs	85,227	9.3	18,864	7.7	3,783	8.7	22.5	5.0
Bus, Mgmt & Pub Admin	143,899	15.7	53,595	21.8	3,867	8.9		13.9
Education	60,098	6.5	27,690	11.3	2,112	4.9	28.5	13.1
Health, Pks, Rec & Fitness	108,394	11.8	28,749	11.7	7,458	17.2	14.5	3.9
Humanities	159,677	17.4	25,359	10.3	5,580	12.8	28.6	4.5
Math, Comp & Info Scis	27,554	3.0	7,494	3.0	2,823	6.5	9.8	2.7
Pers Prot Trans & Othr	31,006	3.4	2,337	1.0	966	2.2	32.1	2.4
Physical & Life Sciences	84,492	9.2	18,738	7.6	5,709	21.1	14.8	3.3
Soc & Behav Scis & Law	167,551	18.2	50,346	20.5	8,208	18.9	20.4	6.1
Vis & Perf Arts & Coms	35,879	3.9	8,793	3.6	2,031	4.7	17.7	4.3
Overall Totals	918,541	100.0	245,982	100.0	43,428	100.0		
Average							21.2	5.7

Data from CAUT Almanac of Post-Secondary Education, 2012-2013. Published by the Canadian Association of University Teachers, October 2012.¹

STUDENT NUMBERS, RESOURCE ALLOCATIONS AND ACADEMIC UNIT WORKLOADS IN UNITED STATES UNIVERSITIES

Information needed to calculate budget dollars per student registration for academic units in United States universities appears not to be easily found. However, some relevant information is available from the *Digest of Education Statistics*, published yearly by the National Center for Education Statistics. Data on numbers of faculty and instructional staff for each program area could be found for 2003-04 as the latest year. Therefore, to permit comparisons with Table 1 data for degrees awarded in 2009-10, Exhibit 2 includes total numbers of degrees conferred by United States degree-granting institutions, by field of study for 1990-91, 2000-01 and 2009-10.

Table 2 shows that, in 2009-10, business disciplines accounted for 21.5% of total university degrees conferred. Degrees awarded in the disciplines of Computer Science and Engineering; and Natural Sciences together accounted for 14.3% of total degrees conferred. The numbers of degrees conferred in different subject disciplines appears to be relatively unchanging over the almost two decades.

TABLE 2
TOTAL NUMBERS OF DEGREES CONFERRED BY DEGREE-GRANTING INSTITUTIONS,
BY FIELD OF STUDY FOR 1990-91, 2000-01 AND 2009-10, IN THE UNITED STATES

	1990-91		2000-01		2009-10	
	Degrees Conferred		Degrees Conferred		Degrees Conferred	
Field of Study	Nos.	%	Nos.	%	Nos.	%
Business	328,605	21.3	380,297	20.7	538,222	21.5
Computer Science & Engineer'g	145,690	9.4	167,424	9.1	194,987	7.8
Education	204,348	13.2	239,571	13.0	292,637	11.7
Humanities	213,327	13.8	261,198	14.2	343,659	13.7
Natural Sciences	93,251	6.0	115,322	6.3	162,552	6.5
Social & Behavioural Sciences	214,288	13.9	241,032	13.1	323,748	12.9
Other	343,439	22.3	432,414	23.5	645,792	25.8
TOTALS	1,542,948	100.0	1,837,258	100.0	2,501,597	100.0

Data obtained from "Table 289. Bachelor's, master's and doctor's degrees conferred by degree-granting institutions, by field of study: Selected years, 1970-71 through 2009-10," Institute of Education Sciences, National Center for Education Statistics, *Digest of Education Statistics*, 2011 Edition. Available at: <http://nces.ed.gov/programs/digest/d11/tables>, accessed in June and December 2013.²

Exhibit 3 includes 2003-04 data on student enrolments and degrees awarded in subject disciplines, along with numbers of university teachers in these disciplines.

EXHIBIT 3
COMPARISON OF NUMBERS OF DEGREE ENROLMENTS AND DEGREES AWARDED,
2003-2004, WITH NUMBERS OF UNIVERSITY FACULTY AND INSTRUCTIONAL
STAFF, FALL 2003, BY PROGRAM AREAS IN THE UNITED STATES

Program Areas (Note 1)	Nos. of Field of Study Enrolments, 2003-04 (Note 2)	Nos. of Degrees Awarded, 2003-04 (Note 3)	Nos. of Full- Time Faculty & Instr'l Staff, Fall 2003 (Note 4)	Nos. of Field of Study Enrolments, 2003-04 Nos. of Full- Time Faculty & Instr'l staff, Fall 2003	Nos. of Degrees Awarded, 2003-04 Nos. of FT Faculty & Instr'l Staff, Fall 2003
Agric & Home Econ	59,000	28,803	17,000	3.5	1.7
Business	2,261,000	447,977	43,000	52.6	10.4
Education	1,460,000	275,711	51,000	28.6	5.4
Engineering	543,000	119,021	33,000	16.5	3.6
Fine Arts	467,000	91,369	43,000	10.9	2.1
Health Sci's	1,026,000	160,734	94,000	10.9	1.7
Humanities:					
English & Lit	225,000	63,147	39,000	5.8	1.6
Foreign Lang	76,000	21,909	20,000	3.8	1.1
History	184,000	33,185	18,000	10.2	1.8
Philosophy	68,000	N/A	13,000	5.2	N/A
Law	195,000	N/A	10,000	19.5	N/A
Natural Sci's:					
Biol Sciences	406,000	75,894	59,000	6.9	1.3
Physical Sci's	129,000	27,782	36,000	3.6	0.8
Mathematics	86,000	18,578	32,000	2.7	0.6
Comp Sci's	562,000	80,540	24,000	23.4	3.4
Social Sci's:					
Economics	81,000	27,742	12,000	6.8	2.3
Political Sci	182,000	38,068	10,000	18.2	3.8
Psychology	470,000	104,823	25,000	18.8	4.2
Sociology	150,000	29,506	9,000	16.7	3.3
Other Soc Sci	84,000	N/A	14,000	6.0	N/A

All Tables are from Institute of Education Sciences, National Center for Education Statistics, *Digest of Education Statistics*, 2011 Edition, or from 2005 and 2012 Editions where specified. The 2011 Edition Tables are available at: <http://nces.ed.gov/programs/digest/d11/tables> , accessed in June and December 2012. The 2005 and 2012 Edition Tables are available at: <http://nces.ed.gov/programs/digest/d05/tables>, and at <http://nces.ed.gov/programs/digest/d05/tables> , both accessed in December 2013.³

DISCUSSION

Table 1 can be seen as indicating administrators' strategy implementation in Canadian universities generally. This must be a reflection of their corporate strategy for the university – whether this is by design or by default.

Further examining Table 1 questions emerge of how enrolment totals for the various subject disciplines are being determined by university administrators and/or academic units. On what basis should enrolments be determined, and what should they be? The question can also be raised as to whether, in our 21st century society dependent on science, engineering, information technologies and business management, should universities be educating more students in these subjects, through majors, minors and joint degrees.

Table 1 also indicates significant variation in teaching workloads between degree subject disciplines and, by inference, their respective academic units. In particular, it appears that Business and Management degree enrolments per teacher (37.2) are almost twice the average (21.2) for all disciplines. Business degrees awarded per teacher (13.9) are somewhat more than twice the average (5.7) for all disciplines.

If the data includes only enrolments by students majoring in business then, to the extent that many students who have not declared majors or who are majoring in other subjects may take business courses, the actual numbers of student course registrations and therefore classroom teaching workloads in business schools generally will be higher. Business schools also may be employing larger numbers of lower-paid teaching contractual lecturers so as to stretch their budgets to cover the student numbers they must accommodate. Variation across business schools in different universities also is to be expected with well-known media-ranked schools likely being better resourced or accommodating smaller numbers of students. The question can be raised whether university administrators properly are considering educational requirements for the various disciplines in setting their budget allocations for teaching support and their requirements for student numbers. More specifically, business schools appear to be lower resourced and/or to be required to accommodate more students, leading to larger average class sizes – if so, why?

Variation in student numbers and resourcing, and therefore in teaching workloads, across constituent fields of study and respective academic units within other subject disciplines listed in Table 1 also is to be expected. For example, it is likely that Health disciplines such as medicine, nursing and pharmacy will have lower numbers of students per teacher and perhaps more resources when compared with the disciplines of Parks, Recreation and Fitness. As well, for the same academic unit in different universities there is likely to be variation as student number requirements and budget allocations vary.

Comparing Table 1 with Table 3, the workload ratios appear generally to be lower. This may be because the original *Digest of Education Statistics* tables include numbers of full-time faculty-and-instructional-staff, and the *CAUT Almanac of Post-Secondary Education* tables include only full-time teachers. Even so, Table 3 indicates significant variation in teaching workloads between degree program areas and, by inference, their respective academic units.

It appears that Business enrolments per full-time faculty-and-instructional-staff individual (52.6) are very much higher than all of the other fields of study. If the data include only enrolments by students majoring in business then, to the extent that many students who have not declared majors or who are majoring in other subjects may take business courses, the actual numbers of student course registrations and therefore classroom teaching workloads in business schools generally will be higher. Business degrees awarded per faculty-and-instructional-staff individual (10.4) again appear to be very much higher than for the other fields of study. Driven by variations in student numbers and in budget allocations, variations in teaching workloads across business schools in different universities may be expected. Variations across academic units within other fields of study and across different universities also are to be expected.

Whether United States university administrators properly are taking account of educational requirements for various disciplines in allocating resources and setting student number requirements is a question that can be raised. Business schools generally appear to be lower resourced and/or to be required to accommodate more students, leading to larger average class sizes – if so, why ?

IMPLICATIONS TO THE PRACTICE OF UNIVERSITY MANAGEMENT EDUCATION

Individual instructors left on their own to large classes can only teach what they can, no matter what the program and course content are advertised to be on paper. The usual coping mechanism is to efficiently standardize and minimize content as far as possible to knowledge-only from the textbook, presented and examined using the publisher's support package. As required courses in business schools usually have the largest numbers of students, they are likely to be taught in this way.

Teaching situational analytical and critical thinking needed for developing students' managerial competence and societal responsibility can require more time for teaching and more support for student learning. Where teachers must cope on their own with large classes, analysis and critical thinking are likely to be covered only normatively and illustratively – so that students may be aware that these things should be done and that they appear to be done but they do not learn what to do and how to do it.

Faculty members are aware that research publications are an absolute requirement for tenure and promotion, as well as for general reputation building – it really is “publish or perish”. Individuals concerned to keep their jobs and to maximise their salaries are likely to be motivated to minimise time spent on teaching so that they can maximise time available for research and publication efforts (Astin, 1993, and Harmon, 2006). Time spent on program development, course design and similar activities also can be minimised or, where such activities may be categorised as academic service, simply avoided (Banks, 1994). Moreover, this strategy can be problematic where market-driven school administrators may be requiring new programs and courses to be designed and taught, and accreditation compliance and assurance of learning to be fully documented.

Also as a requirement for contract renewal, tenure or promotion, faculty members can be required to obtain good scores in student-customer evaluations of their teaching, i.e., “popularity or perish.” It is well-known that dumbing-down of course content along with (judicious) grade-inflation can influence students to reciprocate with good scores for the teacher. Perhaps expecting the required student learning while, in practice, not properly resourcing teaching and imposing publish-or-perish and popularity-or-perish requirements on teachers is a classic folly (Kerr 1995). Where business school student-customers are asked to complete media-ranking questionnaires, schools may perceive that more satisfied customers are more likely to give higher scores. Presumably, teaching students what they want to learn and giving them higher grades (along with placement in a high-paying corporate position) can lead to increased satisfaction.

CONCLUSIONS

In exploring the question of what are students learning in North American university business schools where we have more students in larger classes and teachers have no time to teach, we were struck by the words of Jeffrey Simpson, a columnist in the national Canadian newspaper, *The Globe and Mail*. According to Simpson (2011):

“For a generation or so, universities have been powered by two drives: make themselves stronger in research, and chase money from governments that rewarded institutions for accepting more students. The results were bad for undergraduate education. Professors favoured research over teaching because their tenure and promotion largely depended on it. More students meant bigger classes, because government funding didn't keep pace with enrolment while professors taught fewer undergraduate classes...”

In reality, some academic units must be required to accommodate smaller numbers of students and/or must be allocated relatively larger amounts of resources. These are the “research” units. Other units have larger numbers of students and/or relatively smaller amounts of resources, and these must be the “student teaching” units. Business schools generally appear to be “teaching units” with generally larger student numbers and the largest average class sizes. For academic units such as business schools that are offering

more popular programs and courses, their very popularity can lead to larger student numbers, larger numbers of course registrations, and higher average class sizes, i.e., higher numbers of students per teacher.

Large student numbers, relatively lower amounts of resources and resultant larger class sizes may have become institutionalized in business schools. Individual teachers may have been coping by teaching only textbook knowledge, and “publish-or-perish” and “popularity-or-perish” requirements may have been further drivers towards minimising teaching and minimising what is taught (Glenn, 2011). As well, business schools wishing to ensure high scores from student-customers in customer satisfaction surveys may have been motivated to give their student-customers whatever teaching and learning that they want.

Students in business schools generally can be expected to learn what they are being taught to learn – but it appears that teachers have been neither supported nor motivated to teach them what they should be learning.

ENDNOTES

1. See Notes to Exhibit 1.
 - (1.) Abbreviations for subject disciplines are as follows.
 - Agric, Nat Res & Cons = Agriculture, Natural Resources & Conservation
 - Arch, Eng’g & Rel’d Techs = Architecture, Engineering & Related Technologies
 - Bus, Mgmt & Pub Admin = Business, Management & Public Administration
 - Health, Pks, Rec & Fitness = Health, Parks, Recreation & Fitness
 - Math, Comp & Info Scis = Mathematics, Computer & Information Sciences
 - Pers Prot Trans & Other = Personal, Protective and Transportation Services, Other and Not Applicable
 - Soc & Behav Scis & Law = Social & Behavioural Sciences & Law
 - Vis & Perf Arts & Coms = Visual & Performing Arts & Communications
 - (2.) Data from *CAUT Almanac of Post-Secondary Education, 2012-2013*, Tables 3.9, 3.10 and 3.11 have been combined to calculate the Total Number of FTE (Full-Time Equivalent) Degree Enrolments, 2009-2010.
 - Table 3.9. Undergraduate FTE Enrolment by Field of Study and Sex, 2009-2010 (p.42).
 - Table 3.10. Master’s and Other Graduate Degree FTE Enrolment by Field of Study and Sex, 2009-2010 (p.43).
 - Table 3.11. Doctoral FTE Enrolment by Field of Study and Sex, 2009-2010 (p.44).
 - (3.) Data from *CAUT Almanac of Post-Secondary Education, 2012-2013*, Tables 3.15, 3.16 and 3.17 have been combined to calculate the Total Number of Degrees Awarded, 2009-2010.
 - Table 3.15. Bachelor and Other Undergraduate Degrees Awarded by Field of Study and Sex, 2009-2010 (p.46).
 - Table 3.16. Master’s and Other Graduate Degrees Awarded by Field of Study and Sex, 2009-2010 (p.47).
 - Table 3.17. Doctorates Awarded by Field of Study and Sex, 2009-2010 (p.48).
 - (4.) Data from *CAUT Almanac, 2012-2013*, Table 2.12. Full-Time University Teachers by Major Discipline, Subject, Rank and Sex, 2010-2011 (p.22)
2. Notes to Exhibit 2 (From NCES Table 289):
 - Humanities:* Includes degrees in Area, ethnic, cultural and gender studies; English language and literature/letters; Foreign languages, literatures and linguistics; Liberal arts and sciences, general studies and humanities; Multi/interdisciplinary studies; Philosophy and religious studies; Theology and religious vocations; and Visual and performing arts.
 - Social and Behavioural Sciences:* Includes Psychology and Social sciences and history.
 - Natural Sciences:* Includes Biological and biomedical sciences; Mathematics and statistics; and Physical sciences and science technologies.
 - Computer Sciences and Engineering:* Includes Computer and Information Sciences; Engineering; and Engineering technologies.
 - Other Fields:* Includes Agriculture and natural resources; Architecture and related services; Communication, journalism and related programs; Communications technologies; Family and consumer sciences/human sciences; Health professions and related clinical sciences; Legal professions and studies; Library science; Military technologies; Parks, recreation, leisure and fitness studies; Precision production;

Public administration and social services; Security and protective services; Transportation and materials moving; and Not classified by field of study.

3. Notes to Exhibit 3.

Note 1.

Program Areas are as specified in “Table 270. Full-time and part-time faculty and instructional staff in degree-granting institutions by race/ethnicity, sex, and program area: Fall 1998 and fall 2003.”

Note 2.

Enrolments in field of study are from Digest of Education Statistics, 2005 Edition, “Table 211, Enrolment in postsecondary education, by student level, type of institution, age and major field of study.” For each field of study, the number of students in degree-granting institutions was estimated by subtracting the number of students in 2-year institutions from the All Student total.

Some fields of study specified in Table 211 are not exactly the same as specified in Table 270.

Abbreviations and presumed correspondences are listed below.

<i>Table 270. Program Area</i>	<i>Table 211. Field of Study</i>
Agric & Home Econ =	Agriculture and related sciences
Agriculture and home economics	
Business	Business, management and marketing
Fine Arts	Visual and performing arts
Health sciences	Health professions and related sciences
English & Lit = English and literature	English language and literature/letters
Foreign Lang = Foreign languages	Foreign languages and literatures
Philosophy	Philosophy and religious studies
Biol Sciences = Biological sciences	Biological and bio medical sciences
Mathematics	Mathematics and statistics
Comp Sci's = Computer Sciences	Computer & information sciences
Political Sci = Political science	Political science and government

Note 3.

Total numbers of degrees awarded, i.e., bachelors + masters + doctors, for each field of study were obtained from Digest of Education Statistics tables listed below. The titles of these tables also indicate presumed correspondences with Program Areas as described in Note 1. N/A = Not Available.

Agriculture: Table 312. Degrees in agriculture and natural resources conferred by degree-granting institutions, by level of degree and sex of student: 1970-71 through 2009-10.

Business: Table 316. Degrees in business conferred by degree-granting institutions, by level of degree and sex of student: Selected years, 1955-56 through 2009-10.

Education: Table 319. Degrees in education conferred by degree-granting institutions, by level of degree and sex of student: Selected years, 1949-50 through 2009-10.

Engineering: Table 320. Degrees in engineering and engineering technologies conferred by degree-granting institutions, by level of degree and sex of student: Selected years, 1949-50 through 2009-10.

Fine Arts: Table 334. Degrees in visual and performing arts conferred by degree-granting institutions, by level of degree and sex of student: 1970-71 through 2009-10.

Health Sciences: Table 326. Degrees in the health professions and related programs conferred by degree-granting institutions, by level of degree and sex of student: 1970-71 through 2010-11 (from 2012 Edition).

English and Literature: Table 322. Degrees in English language and literature/letters conferred by degree-granting institutions, by level of degree and sex of student: Selected years, 1949-50 through 2009-10.

Foreign languages: Table 323. Degrees in foreign languages and literatures conferred by degree-granting institutions, by level of degree and sex of student: Selected years, 1959-60 through 2009-10.

History: Table 333. Degrees in economics, history, political science and government, and sociology conferred by degree-granting institutions, by level of degree: Selected years, 1949-50 through 2009-10.

Biological Sciences: Table 314. Degrees in biological and biomedical sciences conferred by degree-granting institutions, by level of degree: Selected years, 1951-52 through 2009-10.

Physical Sciences: Table 328. Degrees in physical sciences and science technologies conferred by degree-granting institutions, by level of degree: Selected years, 1959-60 through 2009-10.

Mathematics: Table 327. Degrees in mathematics and statistics conferred by degree-granting institutions, by level of degree: Selected years, 1949-50 through 2010-11 (from 2012 Edition).

Computer Sciences: Table 318. Degrees in computer and information sciences conferred by degree-granting institutions, by level of degree and sex of student: 1970-71 through 2009-10.

Economics: Table 333. Degrees in economics, history, political science and government, and sociology conferred by degree-granting institutions, by level of degree: Selected years, 1949-50 through 2009-10.

Political Science: Table 333, as above.

Psychology: Table 330. Degrees in psychology conferred by degree-granting institutions, by level of degree and sex of student: Selected years, 1949-50 through 2009-10.

Sociology: Table 333, as above.

Note 4.

From: Table 270. Full-time and part-time faculty and instructional staff in degree-granting institutions by race/ethnicity, sex, and program area: Fall 1998 and fall 2003.

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