History of Science

In this section, we will provide an overview of a select group of History of Science programs. In HDS-1, we included the twenty-one universities that had averaged 1 or more PhD granted per year from 2001 to 2005. History of Science is a relatively small field, and data on PhDs granted are available only at the university level. When a university reports granting only one PhD in a five-year period, it is possible that the student earning the degree developed his or her own interdisciplinary program. That is why we limited the initial pool to the programs at the twenty-one universities that had averaged at least one PhD granted per year over a five-year period. These twenty-one programs accounted for 80% of the PhDs granted in History of Science during this period; there were a total of 52 universities that awarded at least one PhD in History of Science over this period.

In HDS-2, three of the schools reported that they no longer offered degrees in History of Science. One now offers a certificate, and one has stopped accepting students. In the case of the third school, it appears that we contacted the Department of Science and Technology Studies. That department does not offer a degree in History of Science; however, the History department at that school does offer a degree in History of Science. Since we did not collect data from the 19th program, we will consider only the 18 programs that remain from the initial 21. We do know that a total of 67 different universities awarded at least one PhD in History of Science between 2007 and 2011. This is a net increase of 15 universities. The net increase results from the "loss" of nine universities which did award at least one PhD in the earlier period not granting a single PhD in the latter period. There were 24 universities which did not grant a PhD in the earlier period that did grant at least one in the latter period. This is illustrative of the "churn" among degree-granting programs in many fields.

We will start with the number of departments and faculty members. Next we will examine undergraduate and graduate education. We will then present data regarding tenure decisions, new hires, and faculty support for research. We also present information regarding online education and digital humanities.

Table HoS1: HDS-1 Departments and Faculty Members, Fall 2012

(The 95% confidence interval for the **change in average per department** from 2007 data is provided in italics; the width of the interval indicates the uncertainty in the estimate. "No δ" indicates any change exhibited is not statistically significant.)

	Number of Remaining HDS-1 Departments*	Among Remaining HDS-1 Departments	
		Average Number of Faculty Members	Total Number of Faculty Members*
All Remaining HDS-1 Departments	**18** *See Appendix D.*	**10.0** No δ	**180**

* These should not be compared directly with 2007 data since these data do not include any departments that have been created in the interim. These data can be interpreted as estimates of minima for all 2012-13 departments combined.

The change in the average number of faculty members per department overall is not statistically significant.

Table HoS2 presents faculty members by tenure status. There have been no significant per-department changes in the distribution of faculty members across the types of appointments since the previous round of the study.

Table HoS2: Faculty Members at HDS-1 Departments* by Tenure Status, Fall 2012

(The 95% confidence interval for the **change in average per department** from 2007 data is provided in italics; the width of the interval indicates the uncertainty in the estimate. "No δ" indicates any change exhibited is not statistically significant.)

	Among Remaining HDS-1 Departments			
	Tenured	**Tenure-Track**	**Neither Tenured nor Tenure-Track, Full-Time**	**Neither Tenured nor Tenure-Track, Part-Time**
All Remaining HDS-1 Departments	**130** No δ	**20** No δ	**10** No δ	**20** No δ

* These should not be compared directly with 2007 data since these data do not include any departments that have been created in the interim. These data can be interpreted as estimates of minima for all 2012-13 departments combined.

Table HoS3 presents faculty members by employment status and gender. As with the tenure status, there have been no significant per-department changes in the proportion of full-time and part-time faculty members or in the proportion of men and women among faculty members.

Table HoS3: Faculty Members at HDS-1 Departments* by Employment Status and Gender, Fall 2012

(The 95% confidence interval for the **change in average per department** from 2007 data is provided in italics; the width of the interval indicates the uncertainty in the estimate. "No δ" indicates any change exhibited is not statistically significant.)

	Among Remaining HDS-1 Departments			
	Full-Time	**Part-Time**	**Men**	**Women**
All Remaining HDS-1 Departments	**150** No δ	**30** No δ	**110** No δ	**70** No δ

* These should not be compared directly with 2007 data since these data do not include any departments that have been created in the interim. These data can be interpreted as estimates of minima for all 2012-13 departments combined.

Table HoS4 is not included. All of the programs included in the study are housed in Primarily Research institutions and award doctorates.

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Table HoS5 summarizes responses to the question of how many bachelor's degrees were awarded in History of Science during the 2011-12 academic year. Once again, there have been no statistically significant changes in the number of bachelor's degrees awarded per department.

Table HoS5: Bachelor's Degrees completed in History of Science in HDS-1 Departments in the 2011-12 Academic Year

(The 95% confidence interval for the **change in average per department** from 2007 data is provided in italics; the width of the interval indicates the uncertainty in the estimate. "No δ" indicates any change exhibited is not statistically significant.)

	Number of Remaining HDS-1 Departments*	Among Remaining HDS-1 Departments	
		Average Number of Bachelor's Degrees Awarded	Total Number of Bachelor's Degrees Awarded*
All Remaining HDS-1 Departments	**18**	**6.9** No δ	**125**

* These should not be compared directly with 2007 data since these data do not include any departments that have been created in the interim. These data can be interpreted as estimates of minima for all 2012-13 departments combined.

Table HoS6 presents data on the number of juniors and seniors with a declared major in History of Science. Overall, there is no significant change in the per-department number of juniors and seniors with a declared major in History of Science.

If the number of students receiving bachelor's degrees is to remain fairly constant, then one would expect the number of juniors and seniors with a declared major to be at least twice as large as the number of bachelor's degree recipients. While that was true in the first round of this study, it is not the case in History of Science this round. Given the number of juniors and seniors with a declared major in History of Science, we might expect to see the number of bachelor's degrees awarded in this discipline to decline in the next few years.

Table HoS6: Number of Juniors and Seniors with Declared Major in History of Science in HDS-1 Departments as of the Beginning of the Fall 2012 Term

(The 95% confidence interval for the **change in average per department** from 2007 data is provided in italics; the width of the interval indicates the uncertainty in the estimate. "No δ" indicates any change exhibited is not statistically significant.)

	Number of Remaining HDS-1 Departments*	Among Remaining HDS-1 Departments	
		Average Number of Juniors & Seniors with Declared Major	Total Number of Juniors & Seniors with Declared Major*
All Remaining HDS-1 Departments	**18**	**11.7** No δ	**210**

* These should not be compared directly with 2007 data since these data do not include any departments that have been created in the interim. These data can be interpreted as estimates of minima for all 2012-13 departments combined.

There were no statistically significant changes in the average number of students in each department completing a minor in History of Science. These data are detailed in Table HoS7. During the 2011 – 2012 academic year, History of Science departments awarded, on average, about 7 bachelor's degrees per department and had about 3 students per department earn a minor in the field.

Table HoS7: Number of Students Completing a Minor in History of Science in HDS-1 Departments during the 2011-12 Academic Year

(The 95% confidence interval for the **change in average per department** from 2007 data is provided in italics; the width of the interval indicates the uncertainty in the estimate. "No δ" indicates any change exhibited is not statistically significant.)

	Number of Remaining HDS-1 Departments*	Among Remaining HDS-1 Departments	
		Average Number of Students Completing a Minor	Total Number of Students Completing a Minor*
All Remaining HDS-1 Departments	**18**	**2.5** No δ	**45**

* These should not be compared directly with 2007 data since these data do not include any departments that have been created in the interim. These data can be interpreted as estimates of minima for all 2012-13 departments combined.

As shown in Table HoS8, there were approximately 260 graduate students enrolled in programs in History of Science departments during the Fall 2012 term. There was no significant change in the average number of graduate students per department.

Table HoS8: Number of Graduate Students in History of Science in HDS-1 Departments during Fall 2012 Term

(The 95% confidence interval for the **change in average per department** from 2007 data is provided in italics; the width of the interval indicates the uncertainty in the estimate. "No δ" indicates any change exhibited is not statistically significant.)

	Number of Remaining HDS-1 Departments*	Among Remaining HDS-1 Departments	
		Average Number of Graduate Students	Total Number of Graduate Students*
All Remaining HDS-1 Departments	**18**	**18.6** No δ	**260**

* These should not be compared directly with 2007 data since these data do not include any departments that have been created in the interim. These data can be interpreted as estimates of minima for all 2012-13 departments combined.

Overall, about 85% of the students enrolled in undergraduate introductory History of Science courses are taught by a full-time faculty member, and 13% are taught by graduate students. These data are presented in Table HoS9. It must again be noted that statistical significance depends on a number of factors, not solely the absolute difference between two values. While differences that are not marked as significant may seem to be the same size as, or even larger than, those marked as significant, they are not statistically significant. The most likely factors attributing to the lack of significance when the absolute difference seems "large enough" are a smaller sample size or a larger variation within that discipline.

Table HoS9: Instructor of Record for Undergraduate Introductory Courses in History of Science in HDS-1 Departments, Fall 2012 Term

	% of students taught by …			
	Full-Time Tenured or Tenure-Track Faculty Members	Full-Time Non-Tenure-Track Faculty Members	Part-Time Faculty Members	Graduate Students in the Department
All Institutions	73%	12%	1%*	13%

* indicates that the proportion is significantly different from all other disciplines combined at the 5% level.

We used regression analysis for these tests with a binary (0-1) variable for the level of interest. If the coefficient for the binary variable differed significantly from 0, then the interpretation from regression is that the discipline differs from all other levels combined.

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Table HoS10 presents results for the instructor of record for all other (non-introductory) classes in History of Science. About 80% of these students are taught by a full-time faculty member. Finally, Table HoS11 summarizes the results for the instructor of record in graduate courses. Almost all of these students are taught by full-time faculty members.

Table HoS10: Instructor of Record for All Other Undergraduate (Non-Introductory) Courses in History of Science in HDS-1 Departments, Fall 2012 Term

	% of students taught by …			
	Full-Time Tenured or Tenure-Track Faculty Members	Full-Time Non-Tenure-Track Faculty Members	Part-Time Faculty Members	Graduate Students in the Department
All Institutions	71%	8%	20%	1%

We used regression analysis for these tests with a binary (0-1) variable for the level of interest. If the coefficient for the binary variable differed significantly from 0, then the interpretation from regression is that the discipline differs from all other levels combined.

Statistical significance depends on a number of factors, not solely the absolute difference between two values. While differences that are not marked as significant may seem to be the same size as, or even larger than, those marked as significant, they are not statistically significant. The most likely factors attributing to the lack of significance when the absolute difference seems "large enough" are a smaller sample size or a larger variation within that discipline.

Table HoS11: Instructor of Record for All Graduate Courses in History of Science in HDS-1 Departments, Fall 2012 Term

	% of students taught by …			
	Full-Time Tenured or Tenure-Track Faculty Members	Full-Time Non-Tenure-Track Faculty Members	Part-Time Faculty Members	Graduate Students in the Department
All Institutions	95%	1%	4%	0%

We used regression analysis for these tests with a binary (0-1) variable for the level of interest. If the coefficient for the binary variable differed significantly from 0, then the interpretation from regression is that the discipline differs from all other levels combined.

Statistical significance depends on a number of factors, not solely the absolute difference between two values. While differences that are not marked as significant may seem to be the same size as, or even larger than, those marked as significant, they are not statistically significant. The most likely factors attributing to the lack of significance when the absolute difference seems "large enough" are a smaller sample size or a larger variation within that discipline.

Table HoS12 presents the results for the assessment of undergraduate student learning in History of Science departments. Learning outcomes assessment is an aggregate assessment which attempts to measure the effectiveness of a program or institution by examining the competence of a given cohort of students. We did not ask about the assessment of individual students; we asked respondents to tell us whether or not they assessed undergraduate student learning.

Table HoS12: Assessment of Overall Undergraduate Student Learning in History of Science in HDS-1 Departments as of the Fall 2012 Term

	All Institutions
No Departmental Assessment	58%
Departmental Assessment for All Majors	33%
Departmental Assessment for Majors in Honors Program Only	0%
Departmental Assessment for Some Other Group of Students	17%

Note: The sum of the four rows in any column may exceed 100% because respondents could select multiple choices.

The "assessment" referenced is an aggregate assessment based on examining the results from a given cohort of students in an attempt to examine the effectiveness of a program.

For History of Science, all of the responding departments view publications as either essential in tenure decisions; 73% of all of the departments in the study view publications this way. Just over two-thirds report that teaching is essential or very important, and service is deemed less important. The views of History of Science departments on the importance of public humanities are similar to that for all disciplines combined. Details for History of Science departments are shown in Table HoS13.

Table HoS13: Considerations in Tenure Decisions in History of Science in HDS-1 Departments, Fall 2012

	Essential	Very Important	Important	Marginally Important	Unimportant
Publications (research, scholarship, and creative work)	100%	0%	0%	0%	0%
Teaching	38%	31%	31%	0%	0%
Service to the department or institution	8%	23%	46%	23%	0%
Public humanities (making the humanities and/or humanities scholarship accessible to the general public)	0%	15%	15%	46%	23%

Table HoS14: Faculty Tenure Decisions and New Hires in HDS-1 Departments

(The 95% confidence interval for the **change in average per department** from 2007 data is provided in italics; the width of the interval indicates the uncertainty in the estimate. "No δ" indicates any change exhibited is not statistically significant.)

	Number in Remaining HDS-1 Departments*	Relative to …
Tenured Faculty Members as of Fall 2012 (Fall 2007)	130	72% of total faculty members No δ
Tenure-Track Faculty Members (not yet tenured) as of Fall 2012 (Fall 2007)	20	11% of total faculty members No δ
Tenure-Track Faculty Members Granted Tenure per Year (Two-Year Average) 2010-11 & 2011-12 (2005-06 & 2006-07)	3 per year	15% of tenure-track, not yet tenured faculty members No δ
Faculty Members Denied Tenure or Leaving Prior to Tenure Decision per Year (Two-Year Average) 2010-11 & 2011-12 (2005-06 & 2006-07)	1 per year	5% of tenure-track, not yet tenured faculty members No δ
Tenured, Tenure-Track and Permanent Faculty Members Hired for 2012-13 (2007-08)	12	8% of full-time faculty members No δ

* These should not be compared directly with 2007 data since these data do not include any departments that have been created in the interim. These data can be interpreted as estimates of minima for all 2012-13 departments combined.

As seen in Table HoS14, there have been no significant changes in the faculty tenure decisions and new hires in History of Science departments.

All of the responding History of Science departments (or the institutions in which they are housed) provide support for research for full-time tenured or tenure-track faculty members; this exceeds that for

all disciplines combined. Full-time non-tenured or non-tenure-track faculty members in History of Science departments are less like to receive research. About one part-time faculty member in twelve receives this support; this is lower than for all disciplines combined. The data are presented in Table HoS15.

Table HoS15: Availability of Institutional or Departmental Support for Research in HDS-1 Departments, Fall 2012

	% of Institutions or Departments Providing Support
For Full-time tenure or tenure-track faculty members	100%
For full-time non-tenured or non-tenure-track faculty members	62%
For part-time faculty members	8%

When looking at all disciplines, about one department in fourteen (7%) offers a fully online course; the same proportion of departments offers a hybrid course. History of Science departments appear to be less likely to offer either type of course. Not only are History of Science departments less likely to offer online or hybrid courses, but it also appears that, at the departments where these courses are offered there are fewer fully online or hybrid courses offered than for all the disciplines combined. The details are shown in Table HoS16.

Table HoS16: HDS-1 History of Science Departments Offering Online Courses, 2011-12 Academic Year

	Departments Offering Fully Online Courses	Average Number of Fully Online Courses Offered	Departments Offering Hybrid Courses	Average Number of Hybrid Courses Offered
All Institutions	**7%**	**3.0**	**7%**	**1.0**

Even though they appear to be less likely to offer online courses, History of Science departments overall appear to be comparable to all disciplines combined when asked about their engagement with digital humanities. These results are summarized in Table HoS17.

Table HoS17: Engagement with Digital Humanities in HDS-1 Departments as of Fall 2012

	Offered Seminar Focusing on Digital Methods for Research and Teaching	Have Formal Guidelines for Evaluating Digital Publications for Tenure and Promotion
All Institutions	**10%**	**11%**