

ASTRONOMY ENROLLMENTS AND DEGREES

Results from the 2007 Survey of Physics & Astronomy Enrollments and Degrees

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focus on series

**ENROLLMENTS
AND DEGREES**

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**Astronomy Enrollments
and Degrees (Nov 2009)**

Physics Undergraduate
Enrollments and Degrees

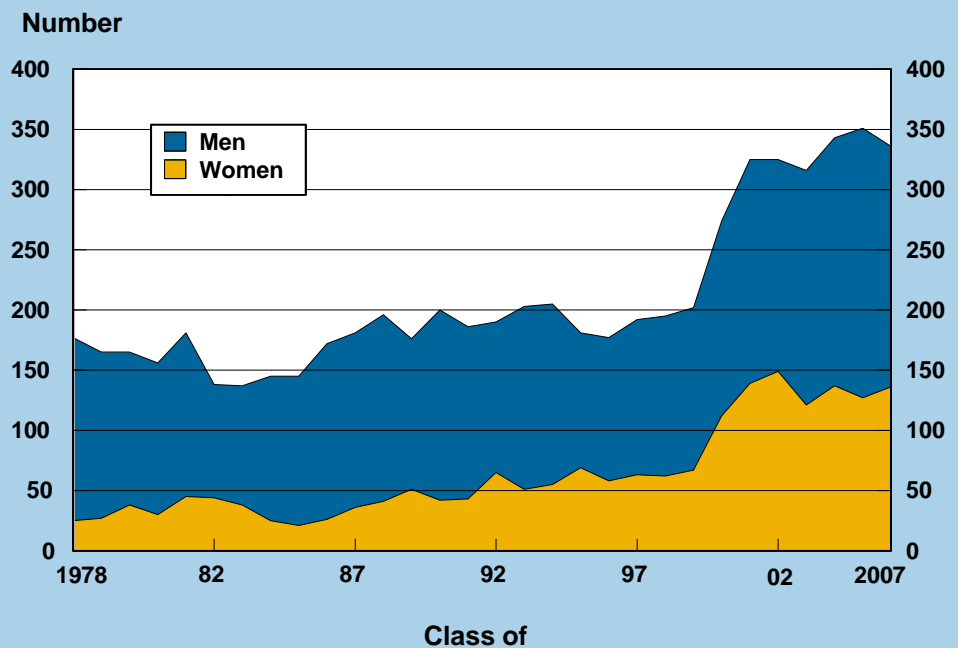
Physics Graduate
Enrollments and Degrees

Astronomy Bachelor's Degrees

Over the last three years, the number of astronomy bachelor's awarded has remained steady with under 350 granted each year (see Figure 1). Women earned 136 bachelor's degrees in astronomy in 2007. The big increase in astronomy bachelor's occurred between 1999 and 2004. A third of the recent gain is a result of existing physics departments adding an astronomy bachelor's degree option.

Figure 1

**Astronomy bachelor's degrees awarded
by gender, classes 1978 through 2007.**



<http://www.aip.org/statistics>

*Over 1.5 million
bachelor's were
awarded in 2007 – only
336 of those went to
astronomy bachelor's.*

Astronomy is a comparatively small discipline. The 75 departments that award astronomy degrees average about 4.5 bachelor's per year. Table 1 lists the major producers of astronomy bachelor's degrees.

Table 1

Departments averaging 7 or more astronomy bachelor's degrees per year, classes 2005 through 2007.

	Annual Average		Annual Average
U of California, Berkeley	25	U of Wisconsin, Madison	11
U of Colorado, Boulder	24	Pennsylvania State U	10
Florida Inst of Technology	16	Boston U (MA)	9
U of California, Los Angeles	13	Columbia U (NY)	9
U of Washington	13	U of Hawaii, Hilo	9
Michigan State U	11	U of Minn, Minneapolis	9
U of Arizona	11	U of Texas, Austin	7
U of Mass, Amherst	11		

<http://www.aip.org/statistics>

There are 75 departments in the U.S. that offer degrees in astronomy. Of these, 38 are stand-alone departments offering only astronomy degrees and 37 offer degrees in both physics and astronomy. This *focus on* presents only degree data from stand-alone astronomy departments and the astronomy portion of departments that grant both physics and astronomy degrees.

Table 2

Number of departments that offer astronomy degrees by highest astronomy degree offered, academic year 2006-07.

	Departments offering astronomy degrees		
	Combined with physics	Separate astronomy	Total
PhD-granting	11	29	40
Master's-granting	1	2	3
Bachelor's-granting	25	7	32
Total	37	38	75

<http://www.aip.org/statistics>

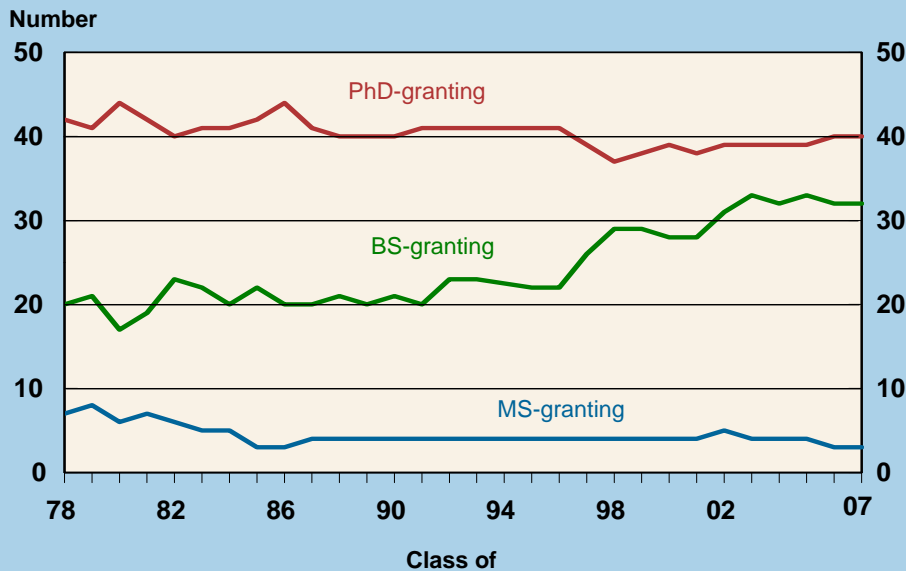
These 15 universities awarded over half of all astronomy bachelor's over the last three years.

PhD-granting astronomy departments are more likely to be stand-alone departments whereas bachelor's-granting astronomy departments tend to be combined with the physics department at the same institution.

Much of the gain in the number of bachelor's-granting departments is a result of existing physics departments adding an astronomy degree option.

Figure 2

Number of departments which offer an astronomy degree by highest astronomy degree offered, classes 1978 through 2007.



<http://www.aip.org/statistics>

The last dozen years has seen over a 40% increase in the number of departments that grant bachelor's as their highest astronomy degree.

Over the last 4 years, introductory astronomy enrollments have remained in the 180,000-190,000 range. The enrollments at departments that offer astronomy degrees include both stand-alone and combined departments. Nearly 140,000 students take introductory astronomy at one of the more than 700 departments that only offer a physics degree.

Table 3

Introductory astronomy course enrollments by type of department, academic year 2006-07.

Highest degree offered	Depts. offering physics degrees only	Depts. offering astronomy degrees
Bachelor's	57,000	9,000
Master's	24,000	3,000
PhD	57,000	39,000
Total	138,000	51,000

<http://www.aip.org/statistics>

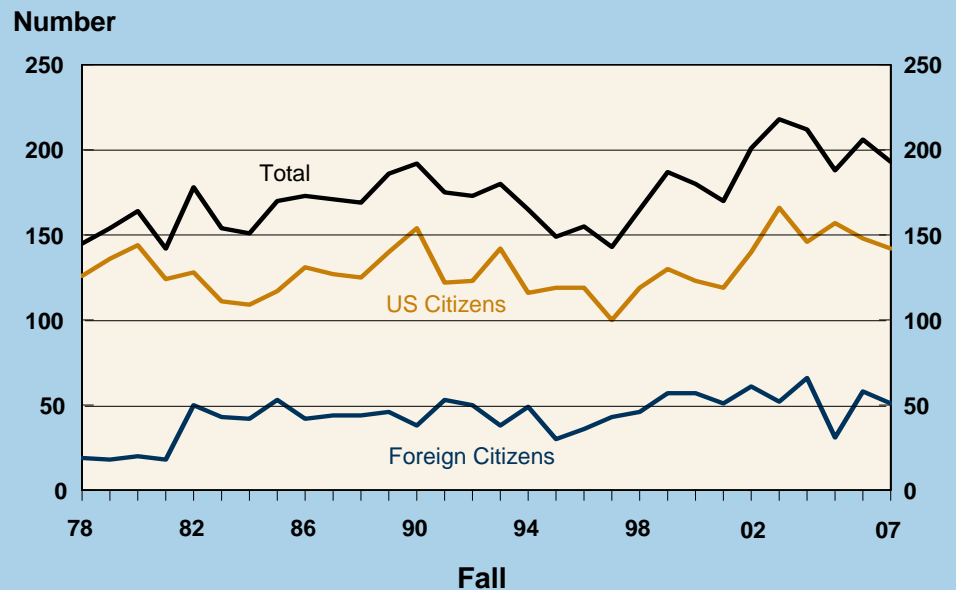
Nearly 190,000 undergraduates take an introductory course in astronomy each year.

Astronomy First-Year Graduate Student Enrollments

Over the last 10 years there has been an increase in the number of 1st year graduate students in astronomy growing from about 150 to about 200. About 50 foreign citizens enrolled in a graduate department that offers an astronomy degree in 2007, comprising slightly more than a ¼ of all 1st year graduate students.

Figure 3

First-year graduate astronomy student enrollments by citizenship, fall 1978 through fall 2007.

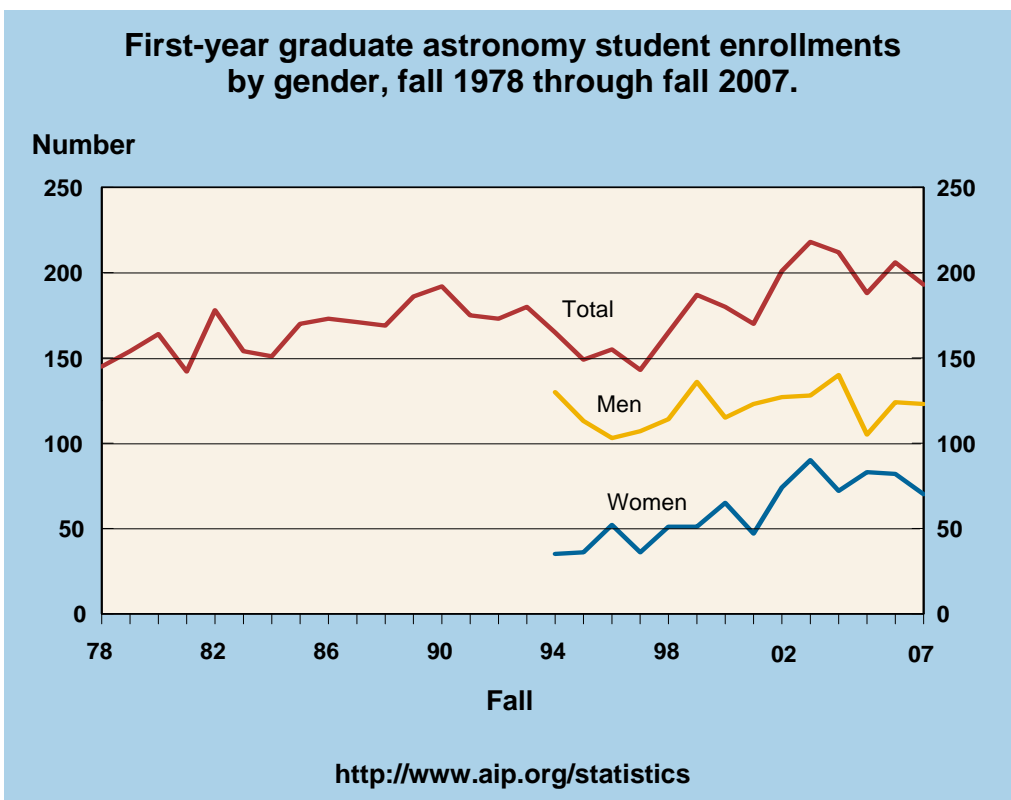


<http://www.aip.org/statistics>

Departments that offer astronomy degrees had slightly fewer than 200 1st year students enrolled in the fall of 2007.

Over the last 10 years, the number of 1st year students who were women increased faster than the number who were men. These data include 1st year graduate students enrolled at departments that offer astronomy degrees at both the master's and PhD levels.

Figure 4

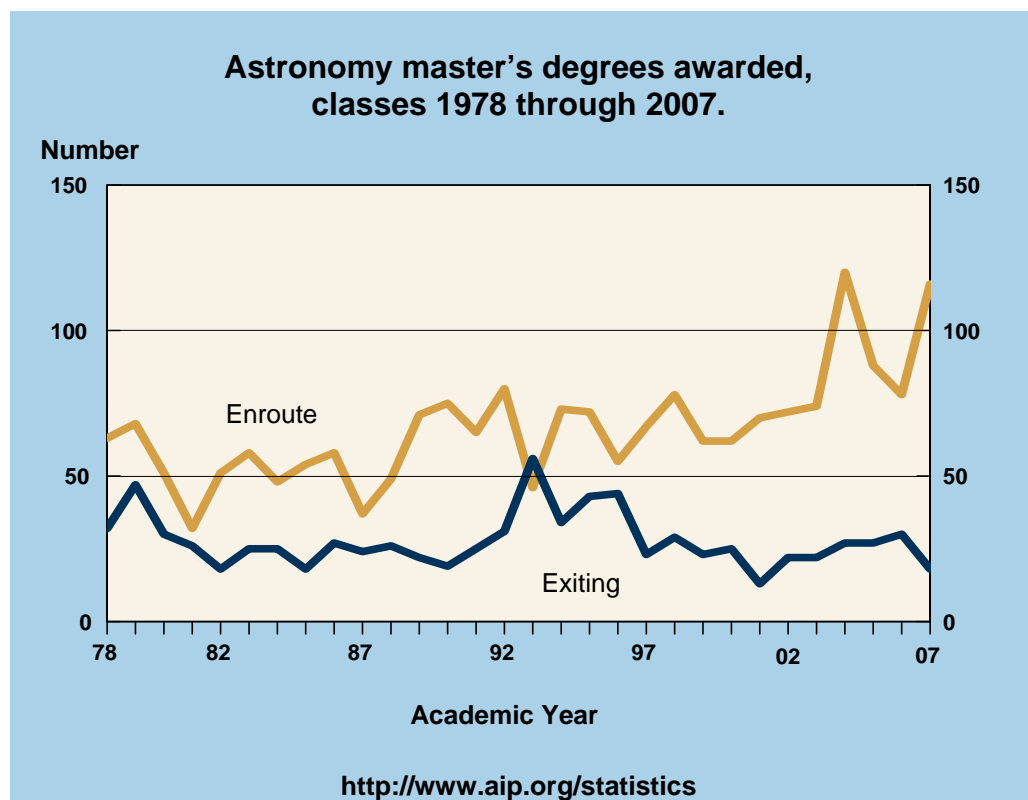


In the fall of 2007, about 1/3 of all 1st year astronomy graduate students were women.

Astronomy Graduate Degrees

Master's degrees include persons exiting a master's or PhD-granting department with a master's and persons receiving master's degrees enroute to a PhD in the same department. During the mid 1990's, astronomy departments awarded slightly more enroute master's degrees than exiting master's. In the class of 2007, by comparison, enroute master's degrees are 5 times more common than exiting master's.

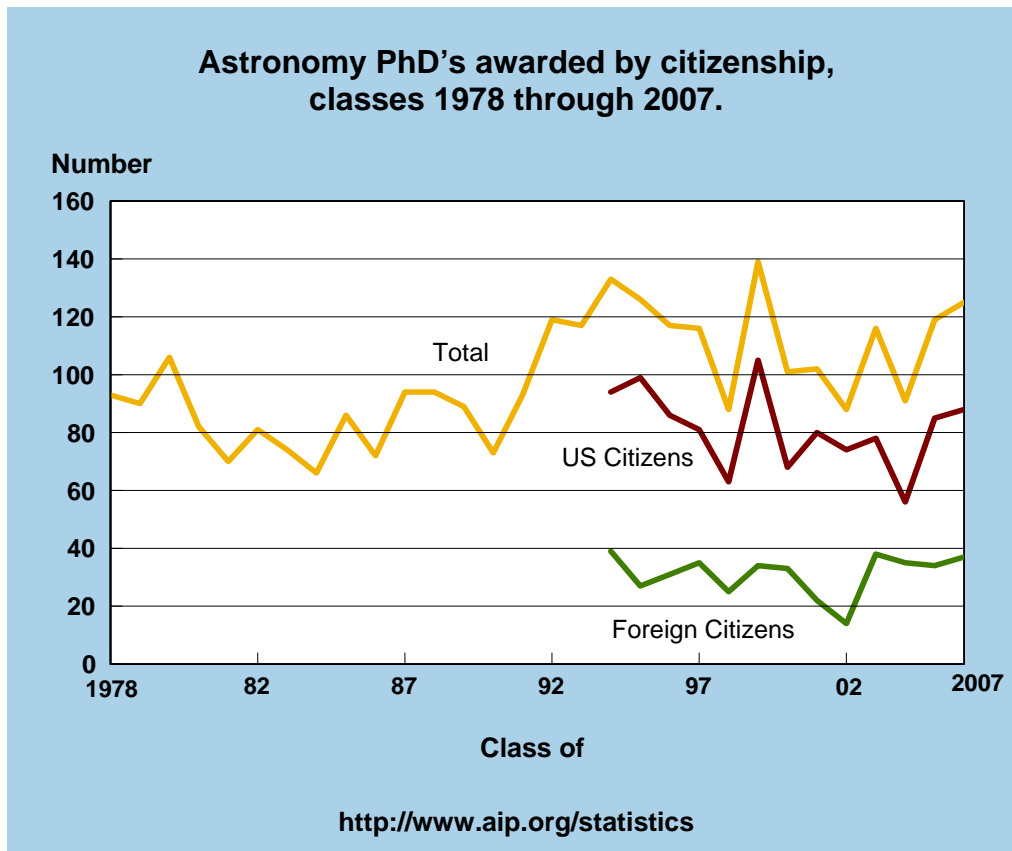
Figure 5



Over time, the number of astronomy enroute degrees has increased while the number of exiting master's has seen a decline.

In the class of 2007, departments offering astronomy degrees awarded 125 PhD's. Astronomy is a comparatively small PhD field with considerable year to year fluctuations in the number of PhD's awarded. The increases and declines seen in the number of PhD's granted over the past 10 years has been driven for the most part by US citizens.

Figure 6



Over twice as many US citizens are granted PhD's in astronomy than foreign citizens.

The number of PhD's awarded on average from the 40 departments that offer a doctorate in astronomy is about 3 per year. Table 4 lists the major producers of PhD's in astronomy. These departments averaged 5 or more astronomy PhD's over the last three years.

Table 4

Astronomy departments averaging 5 or more astronomy doctorate's per year, classes of 2005 through 2007.

	Annual Average
U of Texas, Austin	9
Cornell U	7
U of California, Berkeley	6
U of Colorado, Boulder	6
Ohio State U	5
Princeton U-Forrestal Campus	5
U of Arizona	5
U of Hawaii, Manoa	5

<http://www.aip.org/statistics>

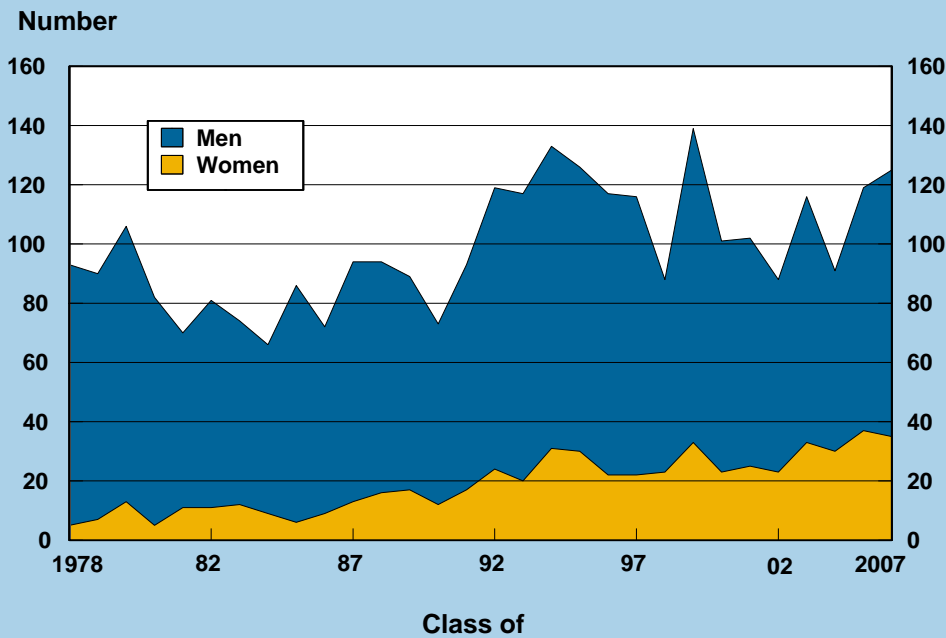
Over 40% of all astronomy PhD's were granted at these institutions over the last three years.

Women in Astronomy

Representation of women among astronomy PhD's has seen a gradual increase over time. Women earned 35 PhD's in astronomy in 2007 whereas 30 years ago, only 5 PhD's went to women in astronomy.

Figure 7

Astronomy PhD's awarded by gender, classes 1978 through 2007.



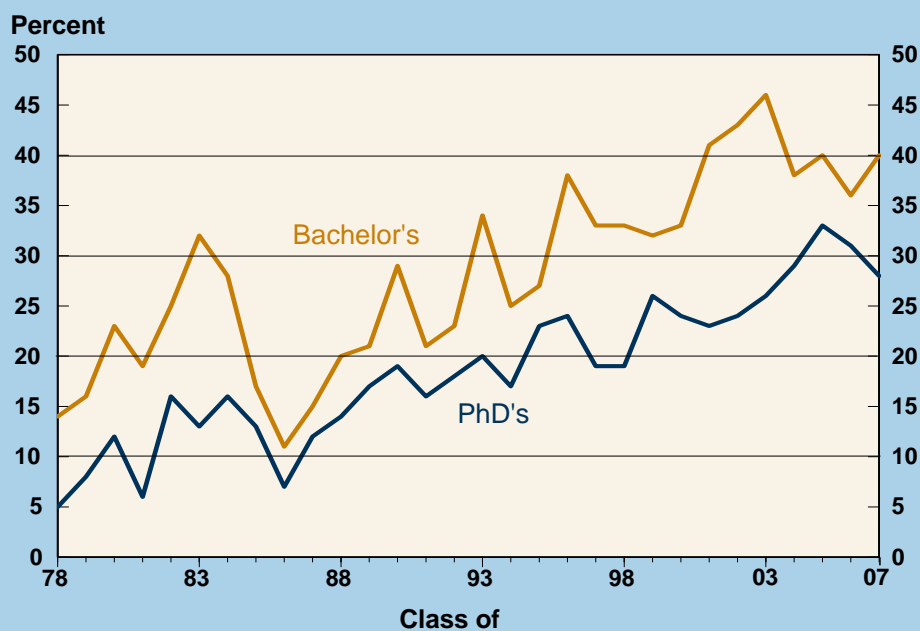
<http://www.aip.org/statistics>

Women account for a 1/4 of the PhD's granted in astronomy in 2007.

The representation of women in astronomy has been gradually increasing at both the bachelor's and PhD levels.

Figure 8

Percent of bachelor's degrees and doctorate's in astronomy earned by women, classes 1978 through 2007.



<http://www.aip.org/statistics>

During the last 2 years, the percentage of women earning PhD's in astronomy has declined.

How the Survey was Conducted

The Statistical Research Center of the American Institute of Physics conducts an annual census from October through February of all 75 departments that offer degrees in astronomy in the United States. For the class of 2007, we received responses from 73 (97%) of these departments. Estimates were derived and included in the totals for non-responding departments.

In addition to this *focus on* there is a companion report, "Rosters of Astronomy Departments", which provides a departmental-level enrollment and degree snapshot of the class of 2007. It can be found on our web site: <http://www.aip.org/statistics/>

These reports are possible because of the efforts of department chairs, faculty, and staff in providing their departmental data to the AIP year after year.