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Radiation Protection Enrollments and Degrees, 1979 and 1980

Enrollments—Fall 1979 and 1980

Degrees Granted—July 1970–June 1980

July 1981

MASTER

Prepared for

Manpower Assessment Program
Advisory and Institutional Coordination Division
Office of Energy Research
U.S. Department of Energy
Washington, D.C. 20585

Prepared by

Labor and Policy Studies Program
Manpower Education, Research, and Training Division
Oak Ridge Associated Universities

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**Radiation Protection
Enrollments and Degrees, 1979 and 1980**

July 1981

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FOREWORD

Public concern over the effects of low-level radiation and other aspects of the use of nuclear energy has grown in recent years, and the demand for radiation protection has continued to increase. *Radiation Protection Enrollments and Degrees* presents the results of the latest survey of institutions offering degree programs in this field. Students obtaining such degrees are vital to the development of industry, medicine, research, power production, construction, and agriculture. These surveys assist state and federal governments in their search for such personnel.

On behalf of all who use this document, we thank the individuals and institutions who provided the information.

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INTRODUCTION

This report represents a compilation of data from the ninth and tenth annual surveys of "radiation protection enrollments and degrees." These surveys were completed for the 1978-79 and 1979-80 academic years. Each year the survey is sent to institutions offering degrees in radiation protection and in other closely related fields (health physics, radiation health, radiological physics, radiobiology, and similar programs) whose graduates would be prepared to conduct, coordinate, direct, or plan a program for the evaluation and control of radiation hazards in various settings. The number of institutions that are surveyed may change from year to year as new programs are identified and other programs are discontinued. The 1979 survey revealed four institutions with inactive programs and one institution whose program was closed; however, this program was reopened in 1980. The 1980 survey revealed only three institutions with inactive programs (two of which were inactive in 1979).

Appendix B-1 lists the addresses of institutions with active programs reported in the 1980 survey. Appendix B-2 lists the institutions with inactive and discontinued programs in 1979 and 1980.

Chart 1. Degrees Granted in Radiation Protection, 1969-80

HIGHLIGHTS

SURVEY UNIVERSE

The 1979 survey included 55 institutions of which 50 reported active programs, 1 reported its program was discontinued, and 4 reported their programs were inactive. The 1980 survey included 55 institutions, and the reports indicated that there were 52 active programs and 3 inactive programs.

ENROLLMENT

Enrollment decreased by 11 percent at the undergraduate level between 1978 and 1979 and increased between 1979 and 1980 by 30 percent. Master's enrollment remained essentially the same from 1978 through 1980, varying only 1 or 2 percent. At the doctoral level, an 11 percent decrease occurred between 1978 and 1979 with a slight recovery of 4 percent between 1979 and 1980.

DEGREES AWARDED

Bachelor's degrees awarded in 1979 and in 1980 were 10 percent below those awarded in 1978. Master's degrees decreased slightly between 1978 and 1979 but rose by 26 percent between 1979 and 1980. The number of doctorate degrees awarded remained constant at 63 between 1978 and 1979 but decreased 21 percent to 50 in 1980.

PLACEMENT

Private industry was the largest employer of bachelor's and master's degree holders in 1980, and medical facilities were the largest employers of doctorates.

The percentage of recipients of bachelor's degrees who went on for further study increased 11 points (to 21 percent) from 1978 to 1980. In 1980, 19 percent of all those receiving master's degrees went on for further study. At the doctoral level, 16 percent were hired by colleges and universities in 1980.

It was difficult to perceive any major placement trends because of the large number of unknown placements at all degree levels. However, one institution reported that it could have placed several more individuals than the number graduating from its program.

FOREIGN NATIONALS

Foreign national student enrollment has decreased since 1978 at the undergraduate and master's level, while the number of doctoral candidates has increased. Bachelor's and doctoral degrees awarded to foreign nationals decreased somewhat while master's degrees increased slightly.

WOMEN AND MINORITIES

Minority participation in radiation protection programs in 1979 and 1980 remained at about the same percentage of the total as in earlier years. Female student enrollments have increased since 1978, and so has the number of degrees awarded to women.

REGIONAL DISTRIBUTION

Undergraduate enrollment was highest in the Middle Atlantic region, which had 33 percent of the total enrolled during the 1979-1980 academic year. However, the Pacific region contained the largest proportion of graduate students with 25 percent of the total in 1980. By state, California awarded the largest number of degrees at all levels.

ENROLLMENTS AND DEGREES

Total enrollment in 1979 for both undergraduates and graduates declined almost 8 percent in comparison to 1978, and then increased by almost 11 percent in 1980 over 1979, (see Table 1). Approximately one quarter of the respondents listed enrollment in subfields other than those listed on the survey instrument.

DOCTORAL

Doctoral candidate enrollments in the fall of 1980 were 282 full-time and 35 part-time students. This represents an 8 percent decrease since 1978 in total enrollment at that level. Fifty doctoral degrees were granted during the academic year ending in June 1980, compared to 63 awarded in 1978 - 21 percent decline; (see Chart 1 and Appendix A-1).

As presented in Table 2, the largest two subfields in doctoral enrollments in 1979 and 1980 were radiobiology or biophysics and medical radiation physics or radiological physics. Approximately two-thirds of the students were enrolled in these programs in the fall of 1979 and 1980. The percentage of degrees awarded was highest, however, during those two years in health physics, radiation health or radiation protection, and radiobiology or biophysics with about 70 percent of the students.

MASTER'S

There was a total of 427 master's degree candidates (305 full-time and 122 part-time) enrolled in the fall of 1980. This enrollment number has remained about the same since 1978, decreasing only slightly in 1979 (see Table 2).

During the academic year 1979-80, 174 master's degrees were granted, an increase of 19 percent over the number awarded in 1978 and the highest number of degrees awarded in this category since 1974. Of all reporting institutions, 32, or 57 percent, awarded master's degrees.

BACHELOR'S

Total undergraduate enrollment has increased the last two years by 15 percent over fall of 1978. There were 158 full-time and 99 part-time juniors enrolled in the fall of 1980, while 111 full-time and 43 part-time seniors were enrolled (see Table 3).

TABLE 1

TOTAL ENROLLMENT OF FULL-TIME AND PART-TIME STUDENTS

FALL 1973 THROUGH FALL 1980

YEAR	FALL ENROLLMENT				TOTAL ENROLLMENT
	JUNIORS	SENIORS	MASTER'S CANDIDATES	DOCTORAL CANDIDATES	
1973	110	95	307	351	863
1974	114	121	308	343	886
1975	214	206	411	348	1179
1976	168	129	399	378	1074
1977	244	198	407	329	1178
1978	179	178	428	344	1129
1979	161	155	421	305	1042
1980	257	154	427	317	1155

SOURCE: U.S. Department of Energy.

TABLE 2

FULL-TIME AND PART-TIME GRADUATE ENROLLMENT AND DEGREES GRANTED
IN RADIATION PROTECTION BY SUBFIELD

SUBFIELDS	ENROLLMENT - FALL 1979												DEGREES (1978-79)			
	MASTER'S CANDIDATES						DOCTORAL CANDIDATES						MASTER'S		DOCTORATES	
	FULL-TIME		PART-TIME		TOTAL		FULL-TIME		PART-TIME		TOTAL					
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Health Physics, Radiation Health, or Radiation Protection	123	42	81	66	204	48	40	16	16	34	56	18	72	52	19	30
Radiobiology or Biophysics	40	14	2	2	42	10	108	42	3	6	111	36	11	8	23	37
Medical Radiation Physics or Radiological Physics	90	31	26	21	116	28	74	29	16	34	90	30	34	25	14	22
Engineering or Basic Sciences, Health Physics Option	7	2	0	0	7	2	1	0	1	2	2	1	3	2	0	0
Other (Specify those not listed)	39	13	13	11	52	12	35	14	11	23	46	15	18	13	7	11
TOTALS	299		122		421		258		47		305		138		63	

SUBFIELDS	ENROLLMENT - FALL 1980												DEGREES (1979-80)			
	MASTER'S CANDIDATES						DOCTORAL CANDIDATES						MASTER'S		DOCTORATES	
	FULL-TIME		PART-TIME		TOTAL		FULL-TIME		PART-TIME		TOTAL					
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Health Physics, Radiation Health, or Radiation Protection	151	50	96	79	247	58	48	17	12	34	60	19	99	57	13	26
Radiobiology or Biophysics	32	10	4	3	36	8	123	44	1	3	124	39	19	11	23	46
Medical Radiation Physics or Radiological Physics	87	29	20	16	107	25	77	27	11	31	88	28	35	20	10	20
Engineering or Basic Sciences, Health Physics Option	10	3	0	0	10	2	2	1	0	0	2	1	1	1	1	2
Other (Specify those not listed)	25	8	2	2	27	6	32	11	11	31	43	14	20	12	3	6
TOTALS	305		122		427		282		35		317		174		50	

NOTE: Percentages may not add to 100 because of rounding.

SOURCE: U.S. Department of Energy.

TABLE 3

FULL-TIME AND PART-TIME UNDERGRADUATE ENROLLMENT AND BACHELOR'S DEGREES GRANTED
IN RADIATION PROTECTION BY SUBFIELD

SUBFIELDS	ENROLLMENT - FALL 1979												BACHELOR'S DEGREES 1978-79	
	JUNIORS						SENIORS							
	FULL-TIME		PART-TIME		TOTAL		FULL-TIME		PART-TIME		TOTAL			
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Health Physics, Radiation Health, or Radiation Protection	55	46	1	2	56	35	83	73	2	5	85	55	70	51
Radiobiology or Biophysics	50	42	0	0	50	31	21	18	0	0	21	14	20	15
Medical Radiation Physics or Radiological Physcis	2	2	1	2	3	2	0	0	2	5	2	1	0	0
Engineering or Basic Sciences, Health Physics Option	2	2	1	2	3	2	3	3	4	10	7	5	6	4
Other (Specify those not listed)	10	8	39	93	49	30	7	6	33	80	40	26	40	29
TOTALS	119		42		161		114		41		155		136	

SUBFIELDS	ENROLLMENT - FALL 1980												BACHELOR'S DEGREES 1979-80	
	JUNIORS						SENIORS							
	FULL-TIME		PART-TIME		TOTAL		FULL-TIME		PART-TIME		TOTAL			
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Health Physics, Radiation Health, or Radiation Protection	52	33	2	2	54	21	64	56	0	0	64	42	65	48
Radiobiology or Biophysics	73	46	0	0	73	28	35	32	0	0	35	23	33	24
Medical Radiation Physics or Radiological Physics	24	15	0	0	24	9	0	0	0	0	0	0	0	0
Engineering or Basic Sciences, Health Physics Option	2	1	6	6	8	3	1	1	4	9	5	3	3	2
Other (Specify those not listed)	7	4	91	92	98	38	11	10	39	91	50	32	35	26
TOTALS	158		99		257		111		43		154		136	

NOTE: Percentages may not add to 100 because of rounding.

SOURCE: U.S. Department of Energy

One hundred thirty-six bachelor's degrees were granted during the academic year ending June 1980 which is 10 percent fewer than in 1978. The subfield category of health physics, radiation health, or radiation protection continued to be the largest area of enrollment over the past two years. The percentage of degrees granted in this area has remained about the same, declining only two percentage points since 1978.

PLACEMENT OF GRADUATES

New doctorate holders found employment most often in academic institutions or medical facilities, as in past years. The academic institution absorbed 11 percent in 1979 and 16 percent in 1980, while medical facilities employed 17 percent in 1979 and 20 percent in 1980. Government-owned, contractor-operated facilities took five new doctorates in each of the last three years. All other placement categories varied a few percentage points. Only one doctoral graduate was reported to be still seeking employment in the 1979 survey, which implies a continuing strong demand for doctorates in radiation protection. From the 55 institutions surveyed in 1980, 11 doctoral graduates were reported as placement unknown, making it difficult to portray any major placement trends.

As shown in Table 4, the proportions of master's graduates who elected to continue their studies in 1979 and 1980 were 23 percent and 19 percent respectively, compared to 22 percent in 1978. Medical facilities and private industry continue to take a sizable proportion of master's degree recipients, with a higher percentage going to private industry in 1980 than in previous years, and medical facility placement remaining about the same. Placement in the military decreased in 1980 to 2 percent from the 5 percent reported in 1978 and 1979. Only two persons in 1979 and one in 1980 were reported as still seeking employment; although a sizable number were reported as placement unknown (14 percent in 1979 and 10 percent in 1980).

Placement of new bachelor's degree holders was divided mainly into three categories: further study with 11 percent in 1979 and 21 percent in 1980, medical facilities with 16 percent in 1979 and 23 percent in 1980, and U.S. industry with 23 percent in 1979 and 29 percent in 1980. These

TABLE 4
PLACEMENT OF 1979 AND 1980 RADIATION
PROTECTION GRADUATES BY DEGREE LEVEL

	BACHELOR'S				MASTER'S				DOCTORAL			
	1979		1980		1979		1980		1979		1980	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Further study	15	11	21	21	33	23	33	19	4	6	7	14
U.S. academic employment	4	2	3	3	3	2	10	5	7	11	8	16
Federal government employment	7	5	9	7	10	7	11	6	3	4	2	4
GOCO (Government-owned, contractor-operated installations)	3	2	4	3	8	5	12	6	5	7	5	10
State and local government	3	2	0	0	1	*	14	8	4	6	0	0
Medical facilities	22	16	23	23	23	16	22	12	11	17	10	20
Industrial employment	32	23	29	29	22	15	43	24	1	1	3	6
Foreign employment	0	0	1	1	1	*	5	2	2	3	1	2
U.S. military service	2	1	2	2	8	5	4	2	3	4	3	6
Other	1	*	0	0	7	5	1	*	0	0	0	0
Seeking employment	1	*	0	0	2	1	1	*	1	1	0	0
Unknown	<u>46</u>	33	<u>44</u>	32	<u>20</u>	14	<u>18</u>	10	<u>22</u>	34	<u>11</u>	22
TOTALS	136		136		138		174		63		50	

*Less than 1 percent.

SOURCE: U.S. Department of Energy.

percentages remain about the same as in 1978 although a slight decrease in industry placement has been reported since 1978. Only one bachelor's degree holder was reported as still seeking employment in 1979 and none in 1980. However, 33 percent in 1979 and 32 percent in 1980 were reported as placement unknown, which makes it difficult to portray any major placement trends.

FOREIGN NATIONALS

Enrollment of foreign nationals changed only slightly in 1979, and no juniors were enrolled in 1980. In 1980, doctoral candidates increased three percentage points over the previous two years. Only a total of four bachelor's degrees were granted to foreign nationals in the last two years. The number granted master's degrees increased by five in 1980, but the number receiving doctorates remained about the same as in 1978 and 1979 (see Table 5).

WOMEN AND MINORITIES

Enrollment of women increased significantly in the last two years at most levels as shown in Table 5. Third-year female enrollment increased to 35 percent of the total in 1980; senior enrollment accounted for 30 percent; female master's candidates rose to 22 percent; and doctoral candidates rose to 21 percent in 1980. There was a significant increase in bachelor's degrees awarded to women in the last two years. Thirty-four percent of the bachelor's degrees awarded in 1979 and 30 percent in 1980 went to women. Twenty-five percent of the master's degrees awarded in 1979 and 16 percent in 1980 went to women, a slight increase over 1978. Doctoral degrees granted to women increased from 11 percent in 1978 to 15 percent in 1979 and 18 percent in 1980.

Participation by blacks generally decreased in 1979 and 1980. Exceptions were enrolled juniors and master's candidates. Blacks earned 7 percent of the bachelor's degrees awarded in 1979 and 5 percent in 1980, down from 13 percent in 1978. The number of master's degrees awarded to blacks steadily decreased from 1978, with two in 1979 and one in 1980. There were no doctoral degrees awarded to blacks in 1980, making a total of three for the last three years.

TABLE 5
PARTICIPATION BY FOREIGN NATIONALS, WOMEN, AND MINORITIES
IN RADIATION PROTECTION PROGRAMS
1973-1980

	ENROLLMENTS (FALL TERM)								DEGREES GRANTED (YEAR ENDING JUNE 30)							
	Junior		Senior		Master's Candidates		Doctoral Candidates		Bachelor's		Master's		Doctoral			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
FOREIGN NATIONALS																
1973	3	3	6	6	29	9	33	9	1	2	8	5	4	6		
1974	-	-	5	4	21	7	32	9	-	-	9	6	3	5		
1975	4	2	2	1	33	8	31	9	4	2	12	7	8	10		
1976	6	4	4	3	26	7	47	12	1	1	19	11	4	7		
1977	3	1	1	*	28	7	39	12	-	-	16	11	8	12		
1978	9	8	1	1	37	11	43	18	4	4	12	11	7	16		
1979	6	6	3	2	36	9	54	18	2	2	16	14	6	10		
1980	0	0	3	2	36	8	62	21	2	1	21	12	7	14		
WOMEN																
1973	24	22	8	8	24	8	23	7	5	8	9	6	3	4		
1974	5	4	14	12	41	13	21	6	7	12	9	7	4	7		
1975	42	20	27	13	49	12	22	6	15	9	12	7	5	7		
1976	34	20	23	18	70	18	116	31	12	10	18	11	11	20		
1977	70	29	45	23	68	17	36	11	22	17	19	13	4	6		
1978	17	16	35	27	62	17	22	9	26	25	18	16	5	11		
1979	31	33	41	31	71	18	54	18	44	34	29	25	9	15		
1980	89	35	47	30	94	22	60	21	41	30	28	16	9	18		
BLACKS																
1973	18	16	3	3	4	1	2	1	-	-	1	1	2	3		
1974	-	-	1	1	2	1	-	-	-	-	1	1	1	2		
1975	18	8	17	9	1	1	-	-	-	-	2	1	1	1		
1976	8	5	2	2	5	1	4	1	3	3	2	1	-	-		
1977	21	9	17	9	5	1	3	1	9	7	1	1	-	-		
1978	13	12	13	10	3	1	4	2	13	13	4	4	2	4		
1979	10	10	9	7	7	2	5	2	9	7	2	2	1	2		
1980	21	8	9	6	9	2	2	1	7	5	1	1	-	-		
HISPANIC U.S. CITIZENS																
1973	6	5	1	1	5	2	2	1	-	-	-	-	1	1		
1974	-	-	-	-	8	3	2	1	1	2	4	3	1	2		
1975	5	2	4	2	5	1	2	1	-	-	1	1	-	-		
1976	-	-	2	2	4	1	4	1	-	-	1	1	2	4		
1977	11	4	2	1	2	*	4	1	2	1	1	1	1	2		
1978	5	5	6	5	2	1	4	2	3	3	1	1	-	-		
1979	9	9	2	2	6	1	5	2	4	3	-	-	-	-		
1980	12	5	7	5	7	2	3	1	2	1	3	2	1	2		
ASIAN AMERICANS or PACIFIC ISLANDERS																
1973	-	-	4	4	7	2	4	1	1	2	4	3	2	3		
1974	-	-	-	-	3	1	2	1	-	-	2	1	-	-		
1975	9	4	3	1	2	*	3	1	3	2	6	4	2	3		
1976	13	8	8	6	5	1	14	4	1	1	1	1	2	4		
1977	4	2	3	2	4	1	6	2	3	2	-	-	1	2		
1978	2	2	-	-	11	4	10	5	1	1	-	-	-	-		
1979	-	-	3	3	5	1	11	3	1	1	4	4	-	-		
1980	19	7	15	10	3	1	16	6	-	-	2	1	1	2		
AMERICAN INDIANS or ALASKAN NATIVES																
1976	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1977	1	*	-	-	3	1	-	-	-	-	1	1	-	-		
1978	-	-	-	-	1	-	1	-	-	-	-	-	-	-		
1979	-	-	-	-	1	-	-	-	-	-	-	-	-	-		
1980	-	-	-	-	-	-	-	-	-	-	-	-	1	2		

*Less than 0.5 percent.

NOTE: Percentages of enrollment and degrees are based on total enrollment and degrees granted by all institutions reporting in that year.

Source: U.S. Department of Energy.

Enrollment of Asians and Pacific Islanders increased significantly for juniors and seniors in 1980, with only a slight change in master's and doctoral candidates. This group received no bachelor's degrees in 1980 and only one in 1979. There were four master's recipients in 1979 and two in 1980. One doctoral degree was awarded to an Asian/Pacific Islander in 1980 after none had been given in the two prior years.

REGIONAL DISTRIBUTION

The Middle Atlantic region contains the largest proportion of enrolled undergraduates with 133 juniors and seniors (32 percent of total), and New York alone accounted for 129 in 1980. However, most of those reported were part-time students enrolled at Manhattan College. The Pacific region reported the highest number of undergraduates for 1979 (28 percent of total). Indiana had the largest number of full-time undergraduates with 73 in 1980, while California with 56 had the largest in 1979. The regions reporting the largest number of bachelor's degrees awarded in 1980 were the Middle Atlantic with 29 (21 percent of total) and the Pacific with 23 (17 percent of total) in 1979. (See Appendix A-5.)

The region reporting the largest graduate student enrollment in 1979 and 1980 was the Pacific region with 169 (23 percent) and 183 (25 percent), respectively, with California the leading state in both years.

The four states that produced the most master's degrees for 1980 were California (25), Colorado and Georgia (13 each), and Massachusetts (14); while for 1979 the three leading states were California (17), Georgia (15), and Indiana (14). At the doctoral level, California was again the leading state with 20 in 1979 and 14 in 1980, while Florida and Indiana were second in 1979, and New York and Indiana second in 1980.

APPENDIXES

Appendix A. Statistical Tables

Appendix B. Addresses

Appendix C. Survey Materials

B = Bachelor's
M = Master's
D = Doctoral

*ESTIMATED

APPENDIX A-1 (Continued)

RADIATION PROTECTION
DEGREES GRANTED 1970-1980, BY INSTITUTIONB = Bachelor's
M = Master's
D = Doctoral

State and Institution	July- June-	1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978			1978 1979			1979 1980		
		B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D			
INDIANA																																		
Butler University.		18	2	-	20	3	-	20	2	-	20	3	-	25	3	-	30	4	-	8	4	-	12	3	-	-	-	-	-	-	-	-	-	
Purdue University.		-	6	10	-	5	6	2	4	8	6	11	12	6	12	10	13	3	7	13	6	13	16	15	9	17	15	6	23	14	8	12	14	5
IOWA																																		
University of Iowa		-	2	2	-	-	1	-	1	1	-	1	3	-	2	3	-	2	3	-	1	2	-	5	1	-	2	2	-	2	3	-	-	3
KANSAS																																		
University of Kansas		3	4	8	-	2	3	1	4	5	2	3	5	1	4	4	2	1	5	-	-	2	1	1	1	-	2	1	4	-	3	-	2	2
KENTUCKY																																		
University of Kentucky, Medical Center	Program at Graduate Level Started January 1968	-	1	-	-	1	-	-	1	-	-	4	-	-	2	-	-	6	-	-	4	-	-	1	-	-	5	-	-	2	-	-	2	-
MARYLAND																																		
Johns Hopkins University, Medical Center		-	-	1	-	2	1	-	-	1	-	-	2	-	-	-	-	1	1	-	2	2	-	2	3	-	2	3	-	1	-	-	6	2
MASSACHUSETTS																																		
Harvard University, School of Public Health.		-	5	1	-	4	1	-	4	2	-	2	1	-	5	-	-	4	2	-	1	1	-	3	3	-	7	2	-	4	4	-	5	2
University of Lowell	Program Started in 1971	-	-	-	-	-	-	-	-	-	9	1	-	21	-	-	17	1	-	13	4	1	6	5	-	11	-	-	3	1	-	8	9	-
MICHIGAN																																		
Michigan State University.		-	-	4	-	2	2	-	2	3	-	1	3	-	5	4	-	2	1	Data Not Available														
University of Michigan		-	5	1	-	5	3	-	8	3	-	5	3	-	6	2	-	7	1	-	14	-	-	6	-	-	-	2	-	4	2	-	10	-
MINNESOTA																																		
University of Minnesota.		-	3	-	-	4	-	-	3	-	-	8	-	-	3	1	-	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2	
MISSOURI																																		
St. Louis University																				Program Started in 1977														
University of Missouri, Columbia																				-	1	-	-	-	-	-	-	-	1	-	-	-	-	
	Program Started in 1971										-	4	-	-	2	-	-	-	1	-	1	-	-	4	3	-	9	4	-	3	-	-	2	-
NEW JERSEY																																		
Rutgers University		-	10	3	-	8	4	-	4	2	-	9	2	-	15	4	-	12	1	-	7	1	5	1	3	5	2	1	1	3	-	3	7	-

APPENDIX A-1 (Continued)

RADIATION PROTECTION
DEGREES GRANTED 1970-1980, BY INSTITUTION

B = Bachelor's
M = Master's
D = Doctoral

	July- June-	1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978			1978 1979			1979 1980																					
State and Institution		B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D																						
NEW YORK																																																					
Clarkson College of Technology								Program Started in 1972																																													
Cornell University, Sloan-Kettering Division	-	1	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1	-	1	1	-	-	1	-	1	-	-	1	-	-	2																					
Manhattan College.								Program Started in 1972																																													
New York University, Medical School	-	6	3	-	4	3	1	6	1	-	7	3	-	5	4	-	-	3	-	-	4	-	-	3	-	2	3	-	3	3	-	2	2																				
Rensselaer Polytechnic Institute.	-	-	-	-	1	1	-	2	-	-	2	-	-	2	-	-	2	-	-	3	-	-	1	-	Data Not Available			See Foot-note Below			-	3	3																				
University of Rochester. . .	-	6	-	-	1	10	-	4	4	-	4	3	-	5	4	-	3	6	-	2	2	-	6	7	-	6	4	-	3	1	-	-	-																				
NORTH CAROLINA																																																					
North Carolina State University	-	1	-	-	1	-	Cooperative Program with University of North Carolina. Students and Graduates Reported by University of North Carolina.																																														
University of North Carolina, Chapel Hill. . .	-	7	3	-	7	-	-	5	-	-	4	-	-	4	3	-	4	-	-	2	-	-	3	-	-	-	2	-	6	1	-	1	1																				
NORTH DAKOTA																																																					
North Dakota State University	-	1	-	-	-	-	-	1	-	-	1	-	-	2	-	-	2	-	-	-	-	-	-	Program Inactive			-	-	-	-	-	-																					
OHIO																																																					
Ohio State University. . . .								First Degree in 1974																																													
University of Cincinnati . .	-	6	-	-	10	-	-	9	-	-	9	-	-	6	1	-	-	-	-	5	-	-	4	-	-	1	-	-	3	-	-	2	-																				
OKLAHOMA																																																					
Oklahoma State University, School of Technology	Program Started '69				3	-	-	5	-	-	8	-	-	11	-	-	10	-	-	12	-	-	12	-	-	15	-	-	9	-	-	12	-	-																			
University of Oklahoma . . .	-	6	-	-	12	2	-	9	-	-	2	1	-	-	1	-	1	1	-	1	-	-	1	-	10	-	-	4	-	-	10	-	-																				
OREGON																																																					
Oregon State University General Science Dept. . .	-	5	1	-	2	6	-	1	3	-	1	-	-	3	-	-	3	1	-	3	2	-	1	1	-	5	-	-	1	-	-	4	1																				
Oregon State University Nuclear Engineering Dept.				Program Started in 1971																										3	-	-	18	-	-	9	-	-	12	1	-	14	-	-	7	-	-	8	-	-	4	-	-

NOTE: Rensselaer Polytechnic Institute does not offer a degree program in Health Physics; however, all RPI students earning a degree in Nuclear Engineering have course work in Health Physics which qualifies them to work in the health physics field.

B = Bachelor's
M = Master's
D = Doctoral

	July- June-	1969 1970	1970 1971	1971 1972	1972 1973	1973 1974	1974 1975	1975 1976	1976 1977	1977 1978	1978 1979	1979 1980
State and Institution		B M D	B M D	B M D	B M D	B M D	B M D	B M D	B M D	B M D	B M D	B M D
PENNSYLVANIA												
Carnegie-Mellon University					Program Started in 1973	- 2 -	- - -	- 4 -	Program Closed Indefinitely			
Duquesne University				Program Started in 1972	1 - -	1 - -	1 - -	1 - -	1 - -	3 - -	Inactive	
Pennsylvania State University					Program Started in 1973	1 - -	Program Discontinued					
Temple University, School of Pharmacy	- 2 -	- 8 1	8 2 -	8 2 1	- 4 1	5 1 1	- - 1	- - -	- - -	Program Discontinued	- - -	- - -
University of Pennsylvania, Hospital	- - -	- - -	- - -	- - -	- - 2	- - 2	Program Discontinued					
University of Pittsburgh, Graduate School of Public Health	- 6 1	- 5 -	- 5 2	- 12 -	- 10 -	- 11 -	- 7 -	- 7 -	- 11 2	- 10 -	- 9 1	
PUERTO RICO												
University of Puerto Rico	- 5 -	- 5 -	- 10 -	- 4 -	- 7 -	- 5 -	- 1 -	- - -	Program Inactive		- - -	
TENNESSEE												
Middle Tennessee State University	4 - -	3 - -	3 - -	3 - -	3 - -	1 - -	3 - -	2 - -	Program Inactive			
University of Tennessee, Chattanooga	2 1 -	3 - -	1 - -	- 1 -	1 - -	2 - -	1 - -	3 - -	2 - -	4 - -	- - -	- - -
University of Tennessee, Knoxville	1 1 3	3 5 5	- 3 3	- 2 -	- 2 -	- 3 2	- - -	- - -	Program Inactive	- 4 1	- 4 -	- - -
Vanderbilt University	1 3 3	1 4 2	1 3 10	- 1 5	- - 1	5 - 1	3 3 3	1 2 1	- 1 2	- - -	- 1 2	- - -
TEXAS												
Texas A&M University	- 4 1	- 8 -	- 4 -	5 5 -	6 4 -	4 4 -	4 3 -	2 1 1	9 5 -	5 2 -	4 1 -	- - -
University of Texas, Austin	- 1 1	- 1 2	Program Discontinued									
University of Texas, Health Science Center, Dallas	- 1 -	- 1 -	- 2 -	- 3 -	- 2 -	- 1 -	- 2 -	- 3 1	- 3 1	- 1 3	- 2 -	- - -
University of Texas, Health Science Center, San Antonio		First Degree in 1973		- 1 -	- - 1	- - -	- - 1	- - 1	- - -	- - 1	- - 2	- - -
VIRGINIA												
University of Virginia, Hospital						Program Started in 1976	- - -	- 5 -	- 2 -	- - -	- - -	- - -
Virginia Polytechnic Institute				Program Started in 1973	19 - -	21 - -	- - -	19 - -	21 - -	18 - -	- - -	- - -

APPENDIX A-1 (Continued)

RADIATION PROTECTION

DEGREES GRANTED 1970-1980, BY INSTITUTION

B = Bachelor's
M = Master's
D = Doctoral

July- June-	1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978			1978 1979			1979 1980		
	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D	B	M	D			
State and Institution																																	
<u>WASHINGTON</u>																																	
University of Washington . .	-	4	-	-	-	-	-	5	-	-	1	1	-	3	-	-	3	-	-	3	-	-	4	-	-	-	-	1	-	-	1	-	
<u>WISCONSIN</u>																																	
University of Wisconsin, Madison.	-	-	2	-	2	2	-	3	5	-	4	2	-	4	1	-	6	4	-	6	2	-	5	-	-	-	-	3	2	-	6	3	
TOTALS	31	140	58	35	158	71	46	172	67	97	181	76	117	179	67	159	174	77	115	171	57	133	148	67	151	146	63	136	138	63	136	174	50

APPENDIX A-2
RADIATION PROTECTION
ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
ARIZONA											
ARIZONA STATE UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	2		1		1	1			1		
CALIFORNIA											
UNIVERSITY OF CALIFORNIA, BERKELEY RADIOBIOLOGY OR BIOPHYSICS	55		25		8		86		33	9	11
CALIF. STATE UNIV., LOS ANGELES HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.	1	2	9			1		1	3		
UNIVERSITY OF CALIFORNIA, LOS ANGELES MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					12		28			7	3
SAN DIEGO STATE UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					9	2				9	
COLORADO											
UNIV. OF COLORADO MEDICAL CENTER MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					11		2			4	
COLORADO STATE UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS ENG. OR BASIC SCI., HEALTH PHYS. OPTION VETERINARY RADIOLOGY RADIOECOLOGY					5		11			6	1
										1	2
					1					1	
					4		5			1	

APPENDIX A-2 (Continued)
RADIATION PROTECTION
ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
FLORIDA											
UNIVERSITY OF FLORIDA											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	1		3		13	1	1		4	9	
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					5	1	3	2		1	
GEORGIA											
EMORY UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					14	1				5	
GEORGIA INSTITUTE OF TECHNOLOGY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	4		2		24	5	6	2	2	8	2
ILLINOIS											
UNIVERSITY OF CHICAGO											
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					1	1	4	2		1	
NORTHWESTERN UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.						2	4	2	3	2	1
UNIVERSITY OF ILLINOIS											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.							2			3	
RADIOBIOLOGY OR BIOPHYSICS							1				
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.							1				
BIOENGINEERING OPTION	1		2								

APPENDIX A-2 (Continued)
RADIATION PROTECTION
ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
INDIANA											
BUTLER UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	18		2		1	4					
RADIOBIOLOGY OR BIOPHYSICS	18		10		1	4					
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.	24										
PURDUE UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	7		12		9	1	4		10	7	3
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.							2			1	
NUCLEAR PHARMACY					1	1	4	1		2	
ENVIRONMENTAL AND OCCUPATIONAL HEALTH	6	1	5		2	1	6	1	2	4	2
IOWA											
UNIVERSITY OF IOWA											
RADIOBIOLOGY OR BIOPHYSICS					9		6				3
KANSAS											
UNIVERSITY OF KANSAS											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	1		4		3		9			2	2
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					8						
KENTUCKY											
UNIVERSITY OF KENTUCKY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					1					2	
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					9						

APPENDIX A-2 (Continued)
RADIATION PROTECTION
ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
MARYLAND											
JOHNS HOPKINS UN. SCH. PUB. HEALTH MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					10		6	5		6	2
MASSACHUSETTS											
HARVARD SCHOOL OF PUBLIC HEALTH HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					1		1			1	
					1		5			2	1
							5			2	1
UNIVERSITY OF LOWELL HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	7			8	10	14		1	8	9	
MICHIGAN											
UNIVERSITY OF MICHIGAN HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					14		3			10	
MINNESOTA											
UNIVERSITY OF MINNESOTA HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					1	1				2	

APPENDIX A-2 (Continued)

RADIATION PROTECTION
ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
MISSOURI											
UNIVERSITY OF MISSOURI-COLUMBIA HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					5 8		5			2	
SAINT LOUIS UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	1		1			2					
NEW JERSEY											
RUTGERS UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. MED. RAD. PHYSICS OR RADIOLOGICAL PHYS. ENG. OR BASIC SCI., HEALTH PHYS. OPTION RADIATION CHEMISTRY AEROSOL PHYSICS	2		1		6 2	25 13			3	6 1	
								1 2			
NEW YORK											
CORNELL UNIVERSITY, SLOAN-KETTERING DIVISION RADIOBIOLOGY OR BIOPHYSICS							4				
CLARKSON COLLEGE RADIATION PHYSICS							3			2	
MANHATTAN COLLEGE RADIOLOGICAL AND HEALTH SCIENCES		90		39					29		
NEW YORK UNIV. MEDICAL CENTER HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.							10	5		2	2
*RENSSELAER POLYTECHNIC INSTITUTE	[11]		[24]		[32]	[4]	[36]	[1]	[36]	[19]	[6]

*RPI does not offer a degree program in Health Physics; however, all students earning a degree in Nuclear Engineering have course work in Health Physics which qualifies them to work in the health physics field. Enrollments and degrees are listed above but are not added to the total enrollments and degrees.

APPENDIX A-2 (Continued)
RADIATION PROTECTION
ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
NEW YORK (CONTINUED)											
UNIVERSITY OF ROCHESTER HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS							6 3			1 2	3
NORTH CAROLINA											
UNIV. OF NORTH CAROLINA, CHAPEL HILL HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.							5 3	4 2	1 3	1	1
NORTH DAKOTA											
NDSU COLLEGE OF PHARMACY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.							1				
OHIO											
UNIVERSITY OF CINCINNATI MED. RAD. PHYSICS OR RADIOLOGICAL PHYS. RADIOLOGY ADMINISTRATION							1 2	1		2	
OHIO STATE UNIVERSITY RADIOBIOLOGY OR BIOPHYSICS									1		

APPENDIX A-2 (Continued)
 RADIATION PROTECTION
 ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

FT = FULL TIME
 PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
OKLAHOMA											
UNIVERSITY OF OKLAHOMA INDUSTRIAL HYGIENE					15		10	5		10	
OKLAHOMA STATE UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.			2						12		
OREGON											
OREGON STATE UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS NUCLEAR ENGINEERING TECHNOLOGY					2 5		1			2 2	1
			3						4		
PENNSYLVANIA											
UNIV. OF PITTSBURGH GRAD. SCH. OF PUB. HLTH. HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					9	18	1	2		9	1
TEMPLE UNIVERSITY NUCLEAR PHARMACY			1								
PUERTO RICO											
UNIVERSITY OF PUERTO RICO HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					5						

APPENDIX A-2 (Continued)
RADIATION PROTECTION
ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
TENNESSEE											
UNIVERSITY OF TENNESSEE, CHATTANOOGA ENG. OR BASIC SCI., HEALTH PHYS. OPTION		6		4							
UNIVERSITY OF TENNESSEE, KNOXVILLE RADIOBIOLOGY OR BIOPHYSICS					6		2	1		4	
VANDERBILT UNIVERSITY MED. RAD. PHYSICS OR RADIOLOGICAL PHYS. ENG. OR BASIC SCI., HEALTH PHYS. OPTION NUCLEAR PHYSICS										1	1
							4	1			1
TEXAS											
TEXAS A&M UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS ENG. OR BASIC SCI., HEALTH PHYS. OPTION	2			7	2 10			2	4	1	
U. OF TX. HEALTH SCI. CNTR., DALLAS MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					3	1	2			2	
U. OF TX. HEALTH SCI. CNTR., SAN ANTONIO RADIOBIOLOGY OR BIOPHYSICS							1				2
VIRGINIA											
VIRGINIA POLYTECHNIC INSTITUTE HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	8			13					18		

APPENDIX A-2 (Continued)
RADIATION PROTECTION
ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
VIRGINIA (CONTINUED)											
UNIVERSITY OF VIRGINIA HOSPITAL MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					3		1	2			1
WASHINGTON											
UNIVERSITY OF WASHINGTON HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					9	14		2 3		1	
WISCONSIN											
UNIVERSITY OF WISCONSIN HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					3 11			12		1 5	3
TOTALS	158	99	111	43	305	122	282	35	136	174	50
	257		154		427		317				

APPENDIX A-3

FOREIGN NATIONALS, WOMEN, AND MINORITIES: RADIATION PROTECTION
ENROLLMENTS AND DEGREES BY INSTITUTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
CALIFORNIA											
UNIVERSITY OF CALIFORNIA, BERKELEY											
FOREIGN NATIONAL MALES					1		8			1	2
FOREIGN NATIONAL FEMALES							3				
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	9		5		1		10		13	1	2
BLACK MALES, NOT HISPANIC, U.S. CIT.			1				1			1	
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.	15		11				4				
ASIAN OR PACIFIC ISL. FEMALES, U.S. CIT.	2		3				3				
AMER. IND., ALASK NAT. MALES, U.S. CIT.											1
CALIF. STATE UNIV., LOS ANGELES											
BLACK FEMALES, NOT HISPANIC, U.S. CIT.		1									
HISPANIC MALES, U. S. CITIZENS			2								
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.		1									
ASIAN OR PACIFIC ISL. FEMALES, U.S. CIT.			1								
UNIVERSITY OF CALIFORNIA, LOS ANGELES											
FOREIGN NATIONAL MALES					1		7				
FOREIGN NATIONAL FEMALES							2			1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.										1	
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.					1		1				
ASIAN OR PACIFIC ISL. FEMALES, U.S. CIT.							1				
SAN DIEGO STATE UNIVERSITY											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					5	2					
COLORADO											
UNIV. OF COLORADO MEDICAL CENTER											
FOREIGN NATIONAL MALES					3					1	
FOREIGN NATIONAL FEMALES					1						

APPENDIX A-3 (Continued)

FOREIGN NATIONALS, WOMEN, AND MINORITIES: RADIATION PROTECTION
ENROLLMENTS AND DEGREES BY INSTITUTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
COLORADO (CONTINUED)											
COLORADO STATE UNIVERSITY											
FOREIGN NATIONAL MALES											1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.							2		6		1
FLORIDA											
UNIVERSITY OF FLORIDA											
FOREIGN NATIONAL MALES							1				
FOREIGN NATIONAL FEMALES							1				
WHITE FEMALES, NOT HISPANIC, U.S. CIT.							7		1		3
HISPANIC MALES, U. S. CITIZENS						1					1
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.							1		1		
GEORGIA											
EMORY UNIVERSITY											
FOREIGN NATIONAL MALES											1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.							1				
BLACK MALES, NOT HISPANIC, U.S. CIT.							2				
GEORGIA INSTITUTE OF TECHNOLOGY											
FOREIGN NATIONAL MALES							1		2		1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					2		7		1		1
BLACK FEMALES, NOT HISPANIC, U.S. CIT.							1				
HISPANIC FEMALES, U. S. CITIZENS											1

APPENDIX A-3 (Continued)

FOREIGN NATIONALS, WOMEN, AND MINORITIES: RADIATION PROTECTION
ENROLLMENTS AND DEGREES BY INSTITUTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
ILLINOIS											
UNIVERSITY OF CHICAGO											
FOREIGN NATIONAL MALES							1	2		1	
FOREIGN NATIONAL FEMALES							1				
WHITE FEMALES, NOT HISPANIC, U.S. CIT.							1				
NORTHWESTERN UNIVERSITY											
FOREIGN NATIONAL MALES							1			1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.						1			1		
HISPANIC MALES, U. S. CITIZENS								1	1		
UNIVERSITY OF ILLINOIS											
FOREIGN NATIONAL MALES							2			1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.										1	
BLACK MALES, NOT HISPANIC, U.S. CIT.							1				
INDIANA											
BUTLER UNIVERSITY											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	8			4							
BLACK MALES, NOT HISPANIC, U.S. CIT.	2										
BLACK FEMALES, NOT HISPANIC, U.S. CIT.	1										
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.	1										
PURDUE UNIVERSITY											
FOREIGN NATIONAL MALES							2				
FOREIGN NATIONAL FEMALES							1			1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	5		8		2	1	1			2	
BLACK MALES, NOT HISPANIC, U.S. CIT.	1		1								
BLACK FEMALES, NOT HISPANIC, U.S. CIT.	2		1						1		
HISPANIC MALES, U. S. CITIZENS							1				
HISPANIC FEMALES, U. S. CITIZENS	1					1					
ASIAN OR PACIFIC ISL. FEMALES, U.S. CIT.							1			1	

APPENDIX A-3 (Continued)

FOREIGN NATIONALS, WOMEN, AND MINORITIES: RADIATION PROTECTION
ENROLLMENTS AND DEGREES BY INSTITUTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
IOWA											
UNIVERSITY OF IOWA											
FOREIGN NATIONAL FEMALES					1		1				
WHITE FEMALES, NOT HISPANIC, U.S. CIT.								2			
BLACK FEMALES, NOT HISPANIC, U.S. CIT.					1						
HISPANIC MALES, U. S. CITIZENS							1				
KANSAS											
UNIVERSITY OF KANSAS											
FOREIGN NATIONAL MALES				3	2		2			1	
FOREIGN NATIONAL FEMALES					2						
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	1						3				
HISPANIC MALES, U. S. CITIZENS					1						
KENTUCKY											
UNIVERSITY OF KENTUCKY											
FOREIGN NATIONAL MALES					1						
FOREIGN NATIONAL FEMALES					1						
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					2						
MARYLAND											
JOHNS HOPKINS UN. SCH. PUB. HEALTH											
FOREIGN NATIONAL MALES					6		2			2	1
FOREIGN NATIONAL FEMALES					1			2			
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					1		1				
HISPANIC MALES, U. S. CITIZENS										1	1
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.							1				

APPENDIX A-3 (Continued)

FOREIGN NATIONALS, WOMEN, AND MINORITIES: RADIATION PROTECTION
ENROLLMENTS AND DEGREES BY INSTITUTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
MASSACHUSETTS											
HARVARD SCHOOL OF PUBLIC HEALTH											
FOREIGN NATIONAL MALES							1			1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.							4			1	1
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.							2			1	1
UNIVERSITY OF LOWELL											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.									1	3	
MICHIGAN											
UNIVERSITY OF MICHIGAN											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.							5			1	
MINNESOTA											
UNIVERSITY OF MINNESOTA											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.										1	
MISSOURI											
UNIVERSITY OF MISSOURI-COLUMBIA											
FOREIGN NATIONAL MALES							1	2			
WHITE FEMALES, NOT HISPANIC, U.S. CIT.							6	1			
BLACK FEMALES, NOT HISPANIC, U.S. CIT.							1				

APPENDIX A-3 (Continued)

FOREIGN NATIONALS, WOMEN, AND MINORITIES: RADIATION PROTECTION
ENROLLMENTS AND DEGREES BY INSTITUTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
NEW JERSEY											
RUTGERS UNIVERSITY											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.	1				3	11		2		1	
NEW YORK											
CLARKSON COLLEGE											
FOREIGN NATIONAL FEMALES								2			
MANHATTAN COLLEGE											
FOREIGN NATIONAL FEMALES										1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.		33		9						8	
BLACK MALES, NOT HISPANIC, U.S. CIT.		7		2						1	
BLACK FEMALES, NOT HISPANIC, U.S. CIT.		7		4						5	
HISPANIC MALES, U. S. CITIZENS		4		3						1	
HISPANIC FEMALES, U. S. CITIZENS		7		1							
NEW YORK UNIV. MEDICAL CENTER											
FOREIGN NATIONAL MALES								1			
FOREIGN NATIONAL FEMALES											1
WHITE FEMALES, NOT HISPANIC, U.S. CIT.											1
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.								1			
UNIVERSITY OF ROCHESTER											
FOREIGN NATIONAL MALES								1		1	
FOREIGN NATIONAL FEMALES								1			
WHITE FEMALES, NOT HISPANIC, U.S. CIT.											2

APPENDIX A-3 (Continued)

FOREIGN NATIONALS, WOMEN, AND MINORITIES: RADIATION PROTECTION
ENROLLMENTS AND DEGREES BY INSTITUTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
NORTH CAROLINA											
UNIV. OF NORTH CAROLINA, CHAPEL HILL											
FOREIGN NATIONAL MALES					1					1	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					2						
OHIO											
UNIVERSITY OF CINCINNATI											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					1	1					
OKLAHOMA											
UNIVERSITY OF OKLAHOMA											
FOREIGN NATIONAL MALES								1			
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					1			3		2	
BLACK MALES, NOT HISPANIC, U.S. CIT.					3						
BLACK FEMALES, NOT HISPANIC, U.S. CIT.					1						
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.								1			
OKLAHOMA STATE UNIVERSITY											
WHITE FEMALES, NOT HISPANIC, U.S. CIT.				1							
OREGON											
OREGON STATE UNIVERSITY											
FOREIGN NATIONAL MALES									1		
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					2					1	1
ASIAN OR PACIFIC ISL. MALES, U.S. CIT.					1						

APPENDIX A-3 (Continued)

FOREIGN NATIONALS, WOMEN, AND MINORITIES: RADIATION PROTECTION
ENROLLMENTS AND DEGREES BY INSTITUTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
PENNSYLVANIA											
UNIV. OF PITTSBURGH GRAD. SCH. OF PUB. HLTH. FOREIGN NATIONAL MALES					1		1			2	
WHITE FEMALES, NOT HISPANIC, U.S. CIT.					3	3				3	
PUERTO RICO											
UNIVERSITY OF PUERTO RICO HISPANIC MALES, U. S. CITIZENS					3						
HISPANIC FEMALES, U. S. CITIZENS					2						
TENNESSEE											
UNIVERSITY OF TENNESSEE, CHATTANOOGA WHITE FEMALES, NOT HISPANIC, U.S. CIT.			1								
UNIVERSITY OF TENNESSEE, KNOXVILLE WHITE FEMALES, NOT HISPANIC, U.S. CIT.					1						
VANDERBILT UNIVERSITY FOREIGN NATIONAL MALES								3			
TEXAS											
TEXAS A&M UNIVERSITY WHITE FEMALES, NOT HISPANIC, U.S. CIT.	2		1		2				2		
U. OF TX. HEALTH SCI. CNTR., DALLAS FOREIGN NATIONAL MALES										2	
FOREIGN NATIONAL FEMALES WHITE FEMALES, NOT HISPANIC, U.S. CIT.					2		2				

APPENDIX A-3 (Continued)

FOREIGN NATIONALS, WOMEN, AND MINORITIES: RADIATION PROTECTION
ENROLLMENTS AND DEGREES BY INSTITUTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
TEXAS (CONTINUED)											
U. OF TX. HEALTH SCI. CNTR., SAN ANTONIO FOREIGN NATIONAL MALES											1
VIRGINIA											
VIRGINIA POLYTECHNIC INSTITUTE WHITE FEMALES, NOT HISPANIC, U.S. CIT.	6		7						8		
UNIVERSITY OF VIRGINIA HOSPITAL FOREIGN NATIONAL MALES FOREIGN NATIONAL FEMALES					1 1		1	2			
WASHINGTON											
UNIVERSITY OF WASHINGTON FOREIGN NATIONAL FEMALES WHITE FEMALES, NOT HISPANIC, U.S. CIT.					1		1	1			
WISCONSIN											
UNIVERSITY OF WISCONSIN FOREIGN NATIONAL MALES FOREIGN NATIONAL FEMALES					5 1		4			3	
TOTALS	59	61	52	19	111	20	109	11	45	51	17
	120		71		131		120				

APPENDIX A-4
 RADIATION PROTECTION CURRICULA
 OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION,
 FALL 1980

HEALTH PHYSICS, RADIATION HEALTH, OR RADIATION PROTECTION

UNDERGRADUATE

GRADUATE

Arizona State University.	Arizona State University
California State University	California State University
	San Diego State University
	Colorado State University
University of Florida	University of Florida
	Emory University
Georgia Institute of Technology	Georgia Institute of Technology
Northwestern University	Northwestern University
	University of Illinois
Butler University	Butler University
Purdue University	Purdue University
University of Kansas.	University of Kansas
	University of Kentucky
	Harvard School of Public Health
University of Lowell.	University of Lowell
	University of Michigan
	University of Minnesota
Saint Louis University.	Saint Louis University
	University of Missouri, Columbia
	Rutgers University
	New York University, Medical Center
	University of Rochester
	University of North Carolina, Chapel Hill
	North Dakota State University
Oklahoma State University	
Duquesne University	Oregon State University
Texas A&M University	University of Puerto Rico
	Texas A&M University
	University of Washington
	University of Wisconsin

APPENDIX A-4 (Continued)
 RADIATION PROTECTION CURRICULA
 OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION,
 FALL 1980

RADIOBIOLOGY OR BIOPHYSICS

UNDERGRADUATE

GRADUATE

University of California, Berkeley.	University of California, Berkeley
	Colorado State University
	University of Illinois
Butler University	Butler University
	University of Iowa
	Harvard School of Public Health
	University of Rochester
	Ohio State University
	University of Tennessee
	Texas A&M University
	University of Texas Health Science Center, Dallas
	University of Washington

MEDICAL RADIATION PHYSICS OR RADIOLOGICAL PHYSICS

California State University, Los Angeles
 University of California, Los Angeles
 University of Colorado Medical Center
 University of Florida
 University of Chicago
 University of Illinois
 Butler University
 Purdue University
 University of Kansas
 University of Kentucky
 Johns Hopkins University School of
 Public Health
 Harvard School of Public Health
 University of Missouri, Columbia
 Rutgers University
 Cornell University, Sloan-Kettering Division

APPENDIX A-4 (Continued)
 RADIATION PROTECTION CURRICULA
 OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION,
 FALL 1980

MEDICAL RADIATION PHYSICS OR RADIOLOGICAL PHYSICS (Continued)

UNDERGRADUATE

GRADUATE

University of North Carolina, Chapel Hill
 University of Cincinnati
 Vanderbilt University
 University of Texas Health Science
 Center, Dallas
 University of Virginia Hospital
 University of Washington
 University of Wisconsin

ENGINEERING OR BASIC SCIENCES, HEALTH PHYSICS OPTION

Rensselaer Polytechnic Institute. Rensselaer Polytechnic Institute
 Rutgers University
 University of Tennessee, Chattanooga

Vanderbilt University
 Texas A&M University

BIOENGINEERING

University of Illinois. University of Illinois

ENVIRONMENTAL HEALTH

Purdue University Purdue University

INDUSTRIAL HYGIENE

University of Oklahoma, Health Sciences Center

NUCLEAR PHARMACY

Temple University

Purdue University

APPENDIX A-4 (Continued)
RADIATION PROTECTION CURRICULA
OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION,
FALL 1980

NUCLEAR PHYSICS

UNDERGRADUATE

GRADUATE

Vanderbilt University

RADIATION CHEMISTRY

Rutgers University

RADIATION INSTRUMENTATION

Butler University

RADIATION PHYSICS

Clarkson College

RADIOECOLOGY

Colorado State University

RADIOLOGY ADMINISTRATION

University of Cincinnati

VETERINARY RADIOLOGY

Colorado State University

APPENDIX A-5

RADIATION PROTECTION
ENROLLMENTS AND DEGREES IN SUBFIELDS BY STATE AND REGIONFT = FULL TIME
PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
REGION I - NEW ENGLAND											
MASSACHUSETTS	7		8		12	14	11	1	8	14	2
TOTAL	7		8		12	14	11	1	8	14	2
REGION II - MIDDLE ATLANTIC											
NEW JERSEY	2		1		8	38		3	3	7	
NEW YORK		90		39			26	5	29	7	5
PENNSYLVANIA			1		9	18	1	2		9	1
TOTAL	2	90	2	39	17	56	27	10	32	23	6
REGION III - EAST NORTH-CENTRAL											
ILLINOIS	1		2		1	3	12	4	3	6	1
INDIANA	73	1	29		14	11	16	2	12	14	5
MICHIGAN					14		3			10	
OHIO					3	1	1			2	
WISCONSIN					14		12			6	3
TOTAL	74	1	31		46	15	44	6	15	38	9
REGION IV - WEST NORTH-CENTRAL											
IOWA					9		6				3

APPENDIX A-5 (Continued)

RADIATION PROTECTION
ENROLLMENTS AND DEGREES IN SUBFIELDS BY STATE AND REGIONFT = FULL TIME
PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1980								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
REGION IV - WEST NORTH-CENTRAL (CONTINUED)											
KANSAS	1		4		11		9			2	2
MINNESOTA					1	1				2	
MISSOURI	1		1		13	2	5			2	
NORTH DAKOTA					1						
TOTAL	2		5		35	3	20			6	5
REGION V - SOUTH ATLANTIC											
FLORIDA	1		3		18	2	4	2	4	10	
GEORGIA	4		2		38	6	6	2	2	13	2
MARYLAND					10		6	5		6	2
NORTH CAROLINA					8	6	4			1	1
PUERTO RICO					5						
VIRGINIA	8		13		3		1	2	18		1
TOTAL	13		18		82	14	21	11	24	30	6
REGION VI - EAST SOUTH-CENTRAL											
KENTUCKY					10					2	
TENNESSEE		6		4	6		6	2		5	2
TOTAL		6		4	16		6	2		7	2

APPENDIX A-5 (Continued)

RADIATION PROTECTION
ENROLLMENTS AND DEGREES IN SUBFIELDS BY STATE AND REGION

FT = FULL TIME

PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1980								DEGREES GRANTED			
	UNDERGRADUATE				GRADUATE				JULY 1979 - JUNE 1980			
	JUNIOR		SENIOR		MASTER		DOCTORATE					
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD	
<hr/>												
REGION VII - WEST SOUTH-CENTRAL												
OKLAHOMA			2		15		10	5	12	10		
TEXAS	2		7		15	1	5		4	3	2	
TOTAL	2		9		30	1	15	5	16	13	2	
<hr/>												
REGION VIII - MOUNTAIN												
ARIZONA	2		1		1	1			1			
COLORADO					21		18			13	3	
TOTAL	2		1		22	1	18		1	13	3	
<hr/>												
REGION IX - PACIFIC												
CALIFORNIA	56	2	34		29	4	114		36	25	14	
OREGON			3		7		1		4	4	1	
WASHINGTON					9	14	5			1		
TOTAL	56	2	37		45	18	120		40	30	15	

APPENDIX B-1

ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERSE WITH ACTIVE PROGRAMS

in RADIATION PROTECTION,

1980

Arizona State University
Department of Engineering
Tempe, Arizona 85281

California State University, Los Angeles
Department of Physics
Los Angeles, California 90032

San Diego State University
Department of Physics
San Diego, California 92182

University of California, Berkeley
Group in Biophysics and Medical Physics
Berkeley, California 94720

University of California, Los Angeles
Department of Radiological Sciences
Los Angeles, California 90024

Colorado State University
Department of Radiology and
Radiation Biology
Fort Collins, Colorado 80523

University of Colorado Medical Center
Department of Radiology
Denver, Colorado 80262

University of Florida
Department of Nuclear Engineering Sciences
and Department of Environmental Engineering
Gainesville, Florida 32611

Emory University
Department of Radiological Sciences
Decatur, Georgia 30322

Georgia Institute of Technology
School of Nuclear Engineering
Atlanta, Georgia 30332

Northwestern University
Department of Civil Engineering
Evanston, Illinois 60201

University of Chicago
Department of Radiology
Chicago, Illinois 60637

University of Illinois, Urbana
Nuclear Engineering Program
Urbana, Illinois 61801

Butler University
Department of Bionucleonics
Indianapolis, Indiana 46208

Purdue University
Department of Bionucleonics
West Lafayette, Indiana 47907

University of Iowa
Radiation Research Laboratory
Iowa City, Iowa 52242

University of Kansas
Department of Radiation Biophysics
Lawrence, Kansas 66045

University of Kentucky
Department of Health Radiation Sciences
Lexington, Kentucky 40506

APPENDIX B-1 (Continued)

ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERSE WITH ACTIVE PROGRAMS

in RADIATION PROTECTION,
1980

The Johns Hopkins University
School of Hygiene & Public Health
Department of Environmental Health Sciences
Baltimore, Maryland 21205

Harvard University School of Public Health
Department of Environmental Health Sciences
Boston, Massachusetts 02115

University of Lowell
Department of Radiological Sciences/Protection
Lowell, Massachusetts 01854

University of Michigan
Department of Environmental
and Industrial Health
Ann Arbor, Michigan 48109

University of Minnesota
Department of Environmental Health
Minneapolis, Minnesota 55455

St. Louis University
Department of Physics
St. Louis, Missouri 63103

University of Missouri, Columbia
Graduate Studies in Nuclear Engineering
Columbia, Missouri 65211

Rutgers University
Department of Radiation Sciences
New Brunswick, New Jersey 08903

Clarkson College of Technology
Department of Physics
Potsdam, New York 13676

Cornell University Graduate School
of Medical Sciences
Memorial Sloan-Kettering Cancer Center
1275 York Avenue
New York, New York 10021

Manhattan College
Department of Radiological and Health
Sciences
Riverdale, New York 10471

New York University Medical Center
Department of Environmental Medicine
New York New York 10016

Rensselaer Polytechnic Institute
Department of Chemical & Environmental
Engineering
Troy, New York 12181

University of Rochester
School of Medicine & Dentistry
Department of Radiation Biology and
Biophysics
Rochester, New York 14642

University of North Carolina, Chapel Hill
Department of Environmental Sciences and
Engineering
Chapel Hill, North Carolina 27514

North Dakota State University
School of Pharmacy
Department of Pharmaceutical Chemistry
and Bionucleonics
Fargo, North Dakota 58105

APPENDIX B-1 (Continued)

ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERSE WITH ACTIVE PROGRAMS

in RADIATION PROTECTION,
1980

Ohio State University
Department of Biophysics
Columbus, Ohio 43210

University of Cincinnati
Department of Radiology
Cincinnati, Ohio 45267

Oklahoma State University
Department of Radiation and
Nuclear Technology
Stillwater, Oklahoma 74074

University of Oklahoma
Health Sciences Center
Department of Environmental Health
Norman, Oklahoma 73190

Oregon State University
Department of General Science
Corvallis, Oregon 97331

Temple University School of Pharmacy
Department of Pharmaceutical Chemistry
Philadelphia, Pennsylvania 19140

University of Pittsburgh, Graduate School
of Public Health
Department of Radiation Health
Pittsburgh, Pennsylvania 15261

University of Puerto Rico
Environmental Health Department
San Juan, Puerto Rico 00936

University of Tennessee, Chattanooga
Department of Physics
Chattanooga, Tennessee 37401

University of Tennessee, Knoxville
Department of Physics
Knoxville, Tennessee 37916

Vanderbilt University
Department of Physics-Astronomy
Nashville, Tennessee 37235

Texas A&M University
Department of Radiological Safety
College Station, Texas 77843

University of Texas Health Science
Center, Dallas
Department of Radiology
Dallas, Texas 75235

University of Texas Health Science Center
Medical Physics-Radiology Center
San Antonio, Texas 78227

University of Virginia Hospital
Radiology Department
Charlottesville, Virginia 22908

Virginia Polytechnic Institute and
State University
Department of Biology
Blacksburg, Virginia 24601

University of Washington
Department of Radiological Sciences
Seattle, Washington 98195

University of Wisconsin, Madison
Department of Radiology-Medical Physics
Madison, Wisconsin 53706

APPENDIX B-2
ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERSE
WITH INACTIVE, AND DISCONTINUED PROGRAMS
in RADIATION PROTECTION,
1979

INACTIVE

University of Alabama, Birmingham
Department of Physics
Birmingham, Alabama 35294

Butler University
Bionucleonics
Indianapolis, Indiana 46208

University of Puerto Rico
Environmental Health Department
San Juan, Puerto Rico 00936

Middle Tennessee State University
Department of Chemistry & Physics
Murfreesboro, Tennessee 37132

DISCONTINUED

Temple University
Pharmaceutical Chemistry
Philadelphia, Pennsylvania 19140
(Started again in 1980)

1980

University of Alabama, Birmingham
Department of Physics
Birmingham, Alabama 35294

Middle Tennessee State University
Department of Chemistry & Physics
Murfreesboro, Tennessee 37132

Duquesne University
Department of Radiological Health
Pittsburgh, Pennsylvania 15219

APPENDIX C
SURVEY MATERIALS

Department of Energy
Washington, D.C. 20585

September 22, 1980

Dear Professor:

The enclosed forms are designed to obtain data concerning the potential supply of radiation protection personnel. This survey is carried out by the Department of Energy (DOE) in partial fulfillment of its requirement to "assure an adequate supply of manpower for the accomplishment of energy research and development programs,...by...the collection, analysis and dissemination of necessary manpower supply and demand data..." which is mandated in P.L. 93-438, the Energy Reorganization Act of 1974, as amended.

The survey is sent to all colleges with programs in any curriculum the successful completion of which would prepare the graduate to take a major role in conducting, coordinating, directing, or planning a program for the evaluation and control of radiation hazards for an installation, community or government agency.

You are not required to respond to this survey, but we hope that you will cooperate. We wish to make the results as comprehensive, accurate and timely as possible. The information obtained is published and widely distributed. It is used by all levels of government and industry for recruitment purposes, and by students and educational institutions for identifying the availability of special curriculums. None of the information is used in any way that could be construed as anything but beneficial to the institutions which participate. Because the form does not request any individually identifiable data on students, DOE does not consider the information confidential.

Complete instructions and definitions needed in filling out the form are included on the form itself. Please complete it and return it to the following address at your earliest convenience:

Ruth M. Gove
Oak Ridge Associated Universities
P.O. Box 117
Oak Ridge, Tennessee 37830 (615) 576-3314

A stamped, self-addressed envelope is enclosed for your convenience.
Thank you for your cooperation.

Sincerely,

Norman Seltzer
Norman Seltzer
Chief, Manpower Assessment

APPENDIX C (Continued) SURVEY MATERIALS

DOE Form IR-617

U. S. Department of Energy

FORM APPROVED
OMB NO. 38-R0176

IMPORTANT: Before completing this form, please see instructions and definitions on the back.

RADIATION PROTECTION ENROLLMENT AND DEGREE SURVEY: 1980

Name of Institution				1	City				28	State		31	32	Zip Code		36	
Department(s) Reporting				61	62	67		79	80	1	6		7		Name of Official Supplying Data		38
Title of Official Supplying Data				66	67	69	70	76	79	80							

SCHOOL NUMBER (Leave Blank)		RADIATION PROTECTION CURRICULUM OR OPTION	CODE	ENROLLMENTS FALL 1980												DEGREES GRANTED July 1979—June 1980						CARD					
				UNDERGRADUATES								MASTER CANDIDATES		DOCTORATE CANDIDATES		Bachelor	Master	Doctorate									
				Junior Year				Senior Year				Full-Time	Part-Time	Full-Time	Part-Time												
				Full-Time	Part-Time	Full-Time	Part-Time																				
1	6		7 8	9	11	12	14	15	17	18	20	21	23	24	26	27	29	30	32	33	35	36	38	39	41	79	80
		Health Physics, Radiation Health, or Radiation Protection	10																								11
		Radiobiology or Biophysics	20																								11
		Medical Radiation Physics or Radiological Physics	30																								11
		Engineering or Basic Sciences, Health Physics Option	40																								11
		Other (Specify those not listed.)	50																								11

TOTAL			
● Please break out the following from the totals reported above.			
	Foreign nationals	Male	60
		Female	6A
	White U.S. citizens, not of Hispanic origin	Male	70
		Female	7A
	Black U.S. citizens, not of Hispanic origin	Male	72
		Female	7B
	Hispanic U.S. citizens	Male	73
		Female	7C
	Asian or Pacific Islander U.S. citizens	Male	74
		Female	7D
	American Indian or Alaskan native U.S. citizens	Male	75
		Female	7E

This survey is authorized by Public Law 93-438, as amended. While you are not required to respond, your cooperation is needed to make the results comprehensive, accurate, and timely. Information will NOT be held confidential.

Remarks:

Authorized Signature

Date

APPENDIX C (Continued)

SURVEY MATERIALS

Note: Information provided through this survey will not be held confidential.

INSTRUCTIONS AND DEFINITIONS FOR COMPLETING DOE FORM IR-617

PURPOSE: This voluntary survey is conducted for the Department of Energy (DOE) in partial fulfillment of its obligation "to assure an adequate supply of manpower for the accomplishment of energy research and development programs...by...the collection, analysis, and dissemination of necessary manpower supply and demand data," as mandated in the Energy Reorganization Act of 1974 (P.L. 93-438), as amended. It is used to determine, by degree level, the yearly supply and anticipated supply of those trained in health physics, radiation health or safety, radiological health, or similar programs, who would be qualified to be responsible for some major phase of a program for the evaluation and control of radiation hazards.

WHO SHOULD COMPLETE AND SUBMIT FORMS: All departments with programs in any curriculum the successful completion of which will equip graduates to take the major role in conducting, coordinating, directing, or planning a program for the evaluation and control of radiation hazards for an installation, community, or State agency. Each major program should be reported on the appropriate line or on separate lines in the write-in space. Very small specialties should be combined.

WHEN AND WHERE TO SUBMIT FORMS: Forms should be submitted within two weeks of receipt, or at the latest, by mid-November, depending upon your institution's enrollment schedule. Send completed forms to:

Ruth M. Gove
Oak Ridge Associated Universities
P.O. Box 117
Oak Ridge, Tennessee (615) 576-3314

A self-addressed, postage-paid envelope is enclosed for your convenience.

SPECIAL INSTRUCTIONS: Report only students enrolled in a degree program. Count Co-op students (see definition below) as full-time students. If exact figures are not available, give your best estimate and indicate by an "E" after each number that is estimated.

DEFINITIONS:

Junior: A student who is more than one and less than two academic years short of a Bachelor's degree or equivalent.

Senior: A student who is one year or less short of a Bachelor's degree or equivalent.

Master's Candidate: A student enrolled in a program leading to any degree below the Ph.D. and above the BS or BA (i.e., a fifth year student in an integrated program leading directly to the MS or a candidate for a first professional degree).

CO-OP Student: A student who alternates sessions of schooling with sessions of employment in a position related to the academic specialty.

Foreign National: Any student who is a citizen of another country and who has not applied for U.S. citizenship.

White not of Hispanic origin: A person having origin in any of the original peoples of Europe, North Africa, or the Middle East.

Black not of Hispanic origin: A person having origin in any of the black racial groups of Africa.

Hispanic: A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race.

Asian or Pacific Islander: A person having origin in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.

American Indian or Alaskan Native: A person having origin in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition.

APPENDIX C (Continued)

SURVEY MATERIALS

DOE Form IR-617-A

U. S. Department of Energy

FORM APPROVED
OMB NO 38-R0176

RADIATION PROTECTION ENROLLMENT AND DEGREE SURVEY—SUPPLEMENT

Reporting Institution _____

Date _____

Please indicate placement or plans of degree recipients for July 1979—June 1980

PLACEMENT OR PLANS AFTER GRADUATION	BACHELORS		MASTERS		DOCTORATES	
	Total Graduates	Foreign Nationals	Total Graduates	Foreign Nationals	Total Graduates	Foreign Nationals
Further study						
U.S. academic employment (show students employed part time under further study)						
Federal government employment						
Government-owned, contrac- tor-operated installations employment (GOCO's)						
State and local government employment						
Medical facilities (including teaching hospital) employment						
Industrial employment within U.S.						
Employment with foreign employer						
U.S. military service						
Other (specify)						
Still seeking employment						
Unknown						