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U.S. Department of Energy
Assistant Secretary for Intergovernmental
and Institutional Relations
Division of Labor Affairs
and Manpower Assessment

MASTER

Radiation Protection Enrollments and Degrees, 1978.

Enrollments ^{9/}Fall 1978

Degrees Granted—
July 1966-June 1978

August 1979

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FOREWORD

The demand for radiation protection personnel has continued to increase. Radiation Protection Enrollments and Degrees gives the results of the latest survey of institutions offering degree programs in this field. Students obtaining such degrees are vital to the continued development and use of radioactive materials in industry, medicine, research, power production, construction, and agriculture.

This publication would not be possible without the sincere interest and cooperation of those individuals and universities who supplied the information. We thank them on behalf of all who use this document.

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INTRODUCTION

This report presents the results of the eighth annual survey of Radiation Protection Enrollments and Degrees. 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. For this year's survey, one institution (Carnegie-Mellon University) reported that its program had been discontinued, and five institutions reported continuing programs but no students.

For the first time in this survey report, the addresses of institutions in the survey universe are separated into two groups. Appendix B-1 includes the addresses of schools with active programs. Appendix B-2 includes addresses of schools with inactive and discontinued programs.

Chart 1. DEGREES GRANTED IN RADIATION PROTECTION 1966-78

HIGHLIGHTS

SURVEY UNIVERSE

The 1978 survey included 56 institutions that reported degrees and enrollments. One school had discontinued its program since the previous survey; five others had continuing programs, but reported no students.

ENROLLMENT

Enrollment decreased by 19 percent at the undergraduate level and rose by 5 percent at the master's level. At the doctoral level, there were 15 more candidates (a five percent increase).

DEGREES AWARDED

The number of degrees awarded at the three levels presented a varied picture when compared to the prior year: bachelor's degrees increased by 13 percent, master's degrees fell by less than one percent, and doctoral degrees decreased by five percent.

PLACEMENT

The number of bachelor's and master's degree recipients who went on for further study dropped 15 percent and 2 percent, respectively, from the prior year. Even so, further study is the largest placement category for master's degree recipients. At the doctoral level 24 percent obtained employment in academia. Placements in medical facilities and industry were the largest categories, each totaling 65 degree recipients at all levels. The large number of unknown placements reported at all degree levels presented a difficult problem in portraying any major placement trends.

MINORITIES AND WOMEN:

The number of Blacks decreased at the undergraduate level, and representation of other minority groups remained low. Undergraduate females decreased significantly. However, women students received a larger proportion of undergraduate and graduate degrees in 1978 than in 1977.

FOREIGN NATIONALS:

Foreign national enrollments increased in all but the senior level. The number of bachelor's degrees earned by foreign nationals increased, but the number of graduate degrees, decreased.

REGIONAL DISTRIBUTION:

Undergraduate enrollment was highest in the Middle Atlantic region, which had 29 percent of the total enrolled. However, the Pacific region contained the largest proportion of graduate students (24 percent of the total). By state, New York awarded the largest number of bachelor's degrees, Georgia had the largest number of master's degrees, and California granted the largest number of doctorates.

TABLE 1
TOTAL ENROLLMENT OF FULL-TIME AND PART-TIME STUDENTS
IN RADIATION PROTECTION, BY EDUCATIONAL LEVEL
FALL 1973 THROUGH FALL 1978

<u>YEAR</u>	<u>ENROLLMENT</u>				
	<u>JUNIORS</u>	<u>SENIORS</u>	<u>MASTER'S CANDIDATES</u>	<u>DOCTORAL CANDIDATES</u>	<u>TOTAL ENROLLMENT</u>
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

SOURCE: Department of Energy

ENROLLMENTS AND DEGREES

DOCTORATES

In Fall 1978, 302 full-time and 42 part-time doctoral candidates were enrolled. These numbers represent a five percent increase in full-time and a two percent increase in part-time students. However, the number of doctorate degrees granted was five percent lower than the previous year (from 67 in 1977 to 63 in 1978), and considerably below the peak years of 1972-73 and 1974-75, which registered 76 and 77 doctorates granted, respectively (see Chart 1 and Appendix A-1).

As presented in Table 2, the largest two subfields in enrollments were radiobiology or biophysics (40 percent of total) and medical radiation physics or radiological physics (26 percent of total). The two largest specialization subfields, for those who recently received doctorates were health physics, radiation health or radiation protection (33 percent of total) and radiobiology or biophysics (30 percent of total).

MASTERS

There were a total of 428 master's degree candidates (315 full-time and 113 part-time) enrolled in the fall of 1978. Both full-time and part-time enrollment increased for a total enrollment increase of five percent over the fall of 1977 (see Table 2).

During academic year 1977-78, there were 146 master's degrees granted. For the fifth straight year, the number of master's degrees granted has declined from the record 181 degrees awarded in 1972-73 (see Chart 1). Of all reporting institutions, 34 (or 67 percent) awarded master's degrees. However, five schools accounted for one-third of the total number of master's degrees awarded.

The largest number of degrees, 61 (or 42 percent), were granted in the health physics, radiation protection or radiation health subfield (see Table 2). The next biggest group of master's degrees granted, 31 (or 21 percent of total) were in subfields listed separately by respondents.

TABLE 2

FULL-TIME AND PART-TIME GRADUATE ENROLLMENT (FALL 1978) AND DEGREES GRANTED (1977-78)
IN RADIATION PROTECTION BY SUBFIELD

SUBFIELDS	ENROLLMENT (FALL 1978)												DEGREES (1977-78)			
	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	149	47	69	61	218	51	63	21	19	45	82	24	61	42	21	33
Radiobiology or Biophysics	29	9	4	4	33	8	137	45	1	2	138	40	22	15	19	30
Medical Radiation Physics or Radiological Physics	73	23	9	8	82	19	74	25	15	36	89	26	28	19	13	21
Engineering or Basic Sciences, Health Physics Option	11	3	0	0	11	3	2	1	2	5	4	1	4	3	0	0
Other (those listed separately by respondents)	53	17	31	27	84	20	26	9	5	12	31	9	31	21	10	16
TOTALS	315		113		428		302		42		344		146		63	

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

Source: Department of Energy.

BACHELORS

A decrease was reported in undergraduate enrollment at both the junior and senior levels. The 126 full-time and 53 part-time juniors who registered represent a 27 percent decrease compared with the previous year. At the senior level, 178 (131 full-time and 47 part-time) students were reported, a 10 percent decrease (see Table 3).

There were 151 bachelor's degrees granted during 1977-78, a 14 percent increase over 1976-77, and the second largest number recorded since the initial survey; 1974-75 remains the peak year with 159 bachelor's degrees.

When comparing the undergraduate enrollment within the radiation protection area, the leading subfield category is health physics, radiation health or radiation protection. Closely following are the institutionally specific subfields listed separately by respondents. This same situation is evident when the subfields for bachelor's degrees are examined. Seventy-six out of 151 (or 50 percent) bachelor's degrees were awarded in health physics, radiation health, or radiation protection. Fifty-one (or 34 percent) of the bachelor's degrees were awarded in subfields listed separately by respondents.

TABLE 3

FULL-TIME AND PART-TIME UNDERGRADUATE ENROLLMENT (FALL 1978) AND BACHELOR'S DEGREES GRANTED (1977-78)
IN RADIATION PROTECTION BY SUBFIELD

SUBFIELDS	ENROLLMENT (FALL 1978)												BACHELOR'S DEGREES 1977-78	
	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	76	60	0	0	76	42	75	57	1	2	76	43	76	50
Radiobiology or Biophysics	29	23	0	0	29	16	32	24	1	2	33	19	20	13
Medical Radiation Physics or Radiological Physics	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Engineering or Basic Sciences, Health Physics Option	4	3	2	4	6	3	5	4	1	2	6	3	3	2
Other (those listed separately by respondents)	17	13	51	96	68	38	19	15	44	94	63	35	51	34
TOTALS	126		53		179		131		47		178		151	

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

Source: Department of Energy.

PLACEMENT OF GRADUATES

New doctorate holders most often found employment in two categories: academic institutions or medical facilities. The former absorbed 24 percent of these graduates, whereas the latter provided jobs for 16 percent. Government-Owned Contractor-Operated facilities took only five new doctorates compared to 13 in 1976-77, a decline of 12 percent. Most other known placement categories fluctuated a few percentage points. As in the previous survey, no recent doctoral graduates were reported as still seeking employment, a sign of a strong occupational demand for doctorates in radiation protection. However, the substantial absence of data from one school has made it difficult to portray any major placement trends.

As shown in Table 4, the largest group of master's graduates elected to continue their studies (22 percent of the total). Two other categories which took sizable proportions of master's degree recipients were medical facilities (16 percent) and private industry (15 percent). As depicted in Chart 2, placement in the military was the highest in five years (5 percent). The fact that one master's recipient was reported as still seeking employment, would also indicate a strong market demand.

Placement of new bachelor's degree holders was divided mainly into U.S. industry (26 percent) and into medical facilities (21 percent). The third largest group (11 percent) chose further study. However, this group decreased considerably from 35 recipients in 1976-77 to 16 recipients. Only three recent bachelor's degree holders were reported to be still seeking employment. As with the doctoral recipients, the lack of placement data has made it difficult to portray any major placement trends.

Chart 2. MAJOR PLACEMENT TRENDS BY DEGREE LEVEL IN RADIATION PROTECTION

Based on percent of known placement 1973-78

TABLE 4
PLACEMENT OF 1977-78
RADIATION PROTECTION GRADUATES
BY DEGREE LEVELS

	<u>BACHELORS</u>	<u>MASTERS</u>	<u>DOCTORATES</u>
Further study	16	33	7
Academic U.S.	5	6	15
Federal employment	4	11	2
GOCO (Government-Owned Contractor-Operated)	6	13	5
State and local government	2	7	5
Medical facilities	31	24	10
Industry, U.S.	40	22	3
Foreign	0	2	2
Military	2	8	1
Other	1	3	0
Seeking employment	3	1	0
Unknown	<u>41</u>	<u>16</u>	<u>13</u>
TOTALS	151	146	63

Source: Department of Energy

WOMEN AND MINORITIES

At the undergraduate level, enrollment of women decreased significantly. The number of female juniors decreased from 70 in 1976-77 to 17 in 1977-78 (from 29 to 16 percent of the total, respectively); the number of women seniors fell from 45 to 35, or from 23 percent to 27 percent. Enrollment of women at the master's level remained relatively stable. The survey results indicated a decline in the number of female doctoral candidates (from 36 to 22). Doctoral degrees awarded to women increased from four to five. As shown in Table 5, the highest number of women since this survey was initiated received bachelor's degrees (up from 17 percent of total in 1976-77 to a current 25 percent). About the same number of women received master's degrees and doctorates both years.

Enrollment of Blacks is down in both undergraduate classes to a current 11 percent of total. The proportion of Blacks receiving bachelor's degrees climbed from seven percent of total (in 1976-77) to 13 percent (in 1977-78). There was also an increase in the number of master's degrees and doctorates awarded to Blacks.

Enrollment of Spanish Surnamed students decreased at the undergraduate junior level, but increased at the senior level. At all other levels, the enrollment remained extremely low. The number of Asian Americans fell in enrollment at the undergraduate level, but increased at the graduate level. There was one master's and one doctorate candidate and no degrees granted to Asian Americans.

FOREIGN NATIONALS

Although the enrollment of foreign nationals increased at the undergraduate level, it is still very small (nine juniors and one senior). The number of master's students rose from 28 to 37. Doctoral enrollment rose only marginally from 39 students to 43.

Foreign nationals were awarded four bachelor's degrees (four percent), 12 master's degrees (11 percent), and seven doctorates (16 percent) during 1977-78. As illustrated in Table 5, although the percentage of foreign nationals receiving bachelor's degrees has been negligible, the proportion of graduate degrees (both masters and doctorates) has risen to approximately 13 percent of the graduate degrees awarded in radiation protection.

REGIONAL DISTRIBUTION

The Middle Atlantic region, with 105 juniors and seniors (or 29 percent of total), contained the largest proportion of enrolled undergraduates (see Appendix A-5). New York alone accounted for 27 percent of the undergraduates enrolled in radiation protection. However, most of the undergraduates enrollment in New York was part-time and located at one institution, Manhattan College. If only full-time undergraduates were compared, Virginia contained the largest proportion. Four states (New York with 35, California with 23, Virginia with 19, and Indiana with 17) produced 51 percent of the total bachelor's degrees awarded in 1977-78.

In contrast, the two largest regions for graduate student enrollment were the Pacific region (with 185 students, or 24 percent of total) and the East North-Central region (with 148 students, or 19 percent of total). California, with 19 percent of the total, was the state with the largest number of graduate students enrolled. The three states that produced the most master's degrees were Georgia (18), Colorado (15), and Indiana (15). At the doctorate level, California was the leading state, with 14 degrees granted, and New York was second, with seven degrees awarded.

TABLE 5
PARTICIPATION BY FOREIGN NATIONALS, WOMEN, AND MINORITIES
IN RADIATION PROTECTION PROGRAMS
1973-1978

	ENROLLMENTS (FALL TERM)								DEGREES GRANTED (YEAR ENDING JUNE 30)					
	Junior		Senior		Master's Candidates		Doctorate Candidates		Bachelor's		Master's		Doctorate	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<u>FOREIGN NATIONALS</u>														
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
<u>WOMEN</u>														
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
<u>BLACKS</u>														
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
<u>SPANISH SURNAMED</u>														
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	-	-
<u>ASIAN AMERICANS</u>														
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	-	-	-	-
<u>AMERICAN INDIANS</u>														
1976	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1977	1	*	-	-	3	1	-	-	-	-	1	1	-	-
1978	-	-	-	-	1	-	1	-	-	-	-	-	-	-

*Less than 1/2 of 1 percent.

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

Source: Department of Energy

APPENDICES

Appendix A. Statistical Tables

Appendix B. Addresses

Appendix C. Survey Materials

APPENDIX A-1

RADIATION PROTECTION
DEGREES GRANTED 1968-1978
By InstitutionB = Bachelors
M = Masters
D = Doctorate

July- June-	1968 1969	1969 1970	1970 1971	1971 1972	1972 1973	1973 1974	1974 1975	1975 1976	1976 1977	1977 1978
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
<u>ALABAMA</u>										
University of Alabama Birmingham	Program started 1968	2 - -	2 - -	3 1 -	- - -	- 4 -	1 3 -	- - -	- - -	Program Inactive
<u>ARKANSAS</u>										
University of Arkansas .	- 4 -	- 2 -	- 4 -	- 5 -	- 3 -	- 1 -	Program Discontinued			
<u>ARIZONA</u>										
Arizona State University						Program Started 1974		1 1 -	3 - -	2 - -
<u>CALIFORNIA</u>										
California State Univ., Los Angeles				Program started 1972		1 - -	1 - -	- - -	- 1 -	3 - -
San Diego State Univ. .	- 2 -	- 1 -	- - -	- 1 -	- 3 -	3 - -	- 3 -	- 9 -	- 8 -	- 5 -
University of California Berkeley	- 3 -	- 1 -	- 4 3	- 5 -	25 4 9	20 4 5	10 8 12	- 4 7	25 3 11	20 5 10
University of California Los Angeles	- 2 3	- 2 1	- 6 2	- 6 -	- 8 2	- 9 1	- 11 6	- 10 3	- 5 1	- 3 4
<u>COLORADO</u>										
Colorado State University	- 10 4	- 8 4	- 5 3	- 6 6	- 7 10	- 8 7	- 14 6	- 9 2	- 9 7	- 11 3
University of Colorado Medical Center				First Degree 1974		2 - -	- 2 -	- 1 -	- 3 -	- 4 -
<u>CONNECTICUT</u>										
Yale University	- 3 -	- 4 -	- 1 -	Program Discontinued						
<u>FLORIDA</u>										
University of Florida . .	- 5 1	- 2 1	- 11 2	- 12 3	- 10 2	- 4 1	- 6 2	2 8 -	2 10 1	2 4 2
University of Miami, School of Medicine . . .	- 4 -	- 5 -	- - -	- 1 -	- 7 -	- - -	- 4 -	- 6 -	Program Discontinued	
<u>GEORGIA</u>										
Emory University, School of Medicine . . .	- - -	- 2 -	- - -	- 5 -	- 3 -	- 4 -	- 4 -	2 5 -	- 5 -	- 7 -
Georgia Institute of Technology	- 6 -	- 4 1	- 4 4	1 12 1	5 10 3	- 9 1	- 10 -	- 9 2	- 6 3	- 11 4

APPENDIX A-1
(Continued)
RADIATION PROTECTION
DEGREES GRANTED 1968-1978
By Institution

B = Bachelors
M = Masters
D = Doctorate

July- June-	1968 1969			1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978		
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
ILLINOIS																														
De Paul University.	-	2	-	-	-	-	-	1	-	-	-	-	2	1	-	2	1	-	10	-	-	Program Discontinued			-	-	-	-	-	-
Northwestern University. . .	-	1	-	-	3	1	-	2	1	-	3	1	1	4	2	1	1	2	-	1	-	4	2	-	2	4	-	3	2	1
University of Chicago.	-	1	-	-	1	1	-	2	-	-	2	1	-	1	-	-	1	-	-	-	1	-	-	-	-	1	2	-	-	3
University of Illinois, Urbana.	-	1	-	-	-	1	-	5	1	-	5	1	-	2	1	-	5	1	-	8	3	1	16	4	-	6	2	-	-	1
INDIANA																														
Butler University.	15	2	-	18	2	-	20	3	-	20	2	-	20	3	-	25	3	-	30	4	-	8	4	-	12	3	-	-	-	-
Purdue University.	-	5	11	-	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
IOWA																														
University of Iowa.	-	1	1	-	2	2	-	-	1	-	1	1	-	1	3	-	2	3	-	2	3	-	1	2	-	5	1	-	2	2
KANSAS																														
University of Kansas.	1	2	3	3	4	8	-	2	3	1	4	5	2	3	5	1	4	4	2	1	5	-	-	2	1	1	1	-	2	1
KENTUCKY																														
University of Kentucky, Medical Center.	Program at Graduate Level Started January 1968			-	1	-	-	1	-	-	1	-	-	4	-	-	2	-	-	6	-	-	4	-	-	1	-	-	5	-
MARYLAND																														
Johns Hopkins University, Medical Institutions.	-	1	3	-	-	1	-	2	1	-	-	1	-	-	2	-	-	-	-	1	1	-	2	2	-	2	3	-	2	3
MASSACHUSETTS																														
Harvard University, School of Public Health	-	2	1	-	5	1	-	4	1	-	4	2	-	2	1	-	5	-	-	4	2	-	1	1	-	3	3	-	7	2
University of Lowell.	Program started 1971			-	-	-	-	-	-	-	-	-	9	1	-	21	-	-	17	-	-	13	4	-	6	5	-	11	-	-
MICHIGAN																														
Michigan State Univer- sity.	-	2	2	-	-	4	-	2	2	-	2	3	-	1	3	-	5	4	-	2	1	-	-	-	-	-	-	-	-	-
University of Michigan.	-	10	1	-	5	1	-	5	3	-	8	3	-	5	3	-	6	2	-	7	1	-	14	-	-	6	-	-	-	2
MINNESOTA																														
University of Minnesota.	-	4	-	-	3	-	-	4	-	-	3	-	-	8	-	-	3	1	-	4	1	-	-	-	-	-	-	-	-	-

APPENDIX A-1
(Continued)

RADIATION PROTECTION
DEGREES GRANTED 1968-1978
By Institution

B = Bachelors
M = Masters
D = Doctorate

State and Institution	July- June- 1968 1969	1969 1970	1970 1971	1971 1972	1972 1973	1973 1974	1974 1975	1975 1976	1976 1977	1977 1978
	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
MISSOURI										
St. Louis University. . .							Program started 1977	- - -	- - -	- - -
University of Missouri, Columbia.			Program started 1971	- 4 -	- 2 -	- - 1	- 1 -	- 4 3	- 9 4	
NEW JERSEY										
Rutgers University. . . .	- 6 -	- 10 3	- 8 4	- 4 2	- 9 2	- 15 4	- 12 1	- 7 1	5 1 3	5 2 1
NEW YORK										
Clarkson College of Technology.				Program started 1972	- - 2	1 2 1	4 2 -	- - -	1 - -	
Cornell University, Sloan- Kettering Division. . . .	- - -	- 1 -	- - -	- 1 1 -	- - -	- - 1	- 1 1	- - 1	- 1 -	
Manhattan College. . . .				Program started 1972	- - -	17 - -	10 - -	27 - -	34 - -	
New York University, Medical School.	- 5 -	- 6 3	- 4 3	1 6 1	- 7 3	- 5 4	- - 3	- - 4	- - 3	- 2 3
Rensselaer Polytechnic Institute.	- 2 3	- - -	- 1 1	- 2 -	- 2 -	- 2 -	- 2 -	- 3 -	- 1 -	- - -
University of Rochester. .	- 2 -	- 6 -	- 1 10	- 4 4	- 4 3	- 5 4	- 3 6	- 2 2	- 6 7	- 6 4
NORTH CAROLINA										
North Carolina State University.	- 1 -	- 1 -	- 1 -	Cooperative Program with University of North Carolina. Students and Graduates Reported by University of North Carolina.						
University of North Carolina, Chapel Hill. . .	- 8 -	- 7 3	- 7 -	- 5 -	- 4 -	- 4 3	- 4 -	- 2 -	- 3 -	- - 2
NORTH DAKOTA										
North Dakota State University.	- 3 -	- 1 -	- - -	- 1 -	- 1 -	- 2 -	- 2 -	- - -	- - -	Program Inactive
OHIO										
Ohio State University. . .				First Degree 1974	- 1 -	- - 1	- 2 2	- - -	- - -	- - -
University of Cincinnati. .	- 4 -	- 6 -	- 10 -	- 9 -	- 9 -	- 6 1	- - -	- 5 -	- 4 -	- 1 -
OKLAHOMA										
Oklahoma State University, School of Technology. . .	Program started 1969	3 - -	5 - -	8 - -	11 - -	10 - -	12 - -	12 - -	15 - -	
University of Oklahoma	- 2 2	- 6 -	- 12 2	- 9 -	- 2 1	- - 1	- 1 1	- 1 -	- - 1	- 10 -

APPENDIX A-1
(Continued)

RADIATION PROTECTION
DEGREES GRANTED 1968-1978
By Institution

B = Bachelors
M = Masters
D = Doctorate

July- June- State and Institution	1968 1970			1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978			
	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	
OREGON																															
Oregon State University General Science Dept.	-	3	5	-	5	1	-	2	6	-	1	3	-	1	-	-	3	-	-	3	1	-	3	2	-	1	1	-	5	-	
Oregon State University Nuclear Engineering Department.							Program started 1971						3	-	-	18	-	-	9	-	-	12	1	-	14	-	-	7	-	-	
PENNSYLVANIA																															
Carnegie-Mellon University.													Program started 1973			-	2	-	-	-	-	-	-	4	-	Program Discontinued					
Duquesne University										Program started 1972			1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	1	-	-	
Temple University, School of Pharmacy	-	1	-	-	2	-	-	8	1	8	2	-	8	2	1	-	4	1	5	1	1	-	-	1	-	-	-	-	-	-	
Pennsylvania State University.													Program started 1973			1	-	-	Program Discontinued												
University of Pennsylvania, Hospital.	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2	Program Discontinued										
University of Pittsburgh, Graduate School of Public Health	-	3	1	-	6	1	-	5	-	-	5	2	-	12	-	-	10	-	-	11	-	-	7	-	-	7	-	-	11	2	
PUERTO RICO																															
University of Puerto Rico	-	5	-	-	5	-	-	5	-	-	10	-	-	4	-	-	7	-	-	5	-	-	1	-	-	-	-	-	Program Inactive		
TENNESSEE																															
Middle Tennessee State University.	1	-	-	4	-	-	3	-	-	3	-	-	3	-	-	3	-	-	1	-	-	3	-	-	2	-	-	Program Inactive			
University of Tennessee, Chattanooga	2	-	-	2	1	-	3	-	-	1	-	-	-	1	-	1	-	-	2	-	-	1	-	-	3	-	-	2	-	-	
University of Tennessee, Knoxville	-	2	3	1	1	3	3	5	5	-	3	3	-	2	-	-	2	-	-	3	2	-	-	-	-	-	-	Program Inactive			
Vanderbilt University	1	2	7	1	3	3	1	4	2	1	3	10	-	1	5	-	-	1	5	-	1	3	3	3	1	2	1	-	1	2	
TEXAS																															
Texas A&M University.	-	3	-	-	4	1	-	8	-	-	4	-	5	5	-	6	4	-	4	4	-	4	3	-	2	1	1	9	5	-	
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	
University of Texas, Health Science Center, San Antonio							First Degree 1973						-	1	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	

APPENDIX A-1

RADIATION PROTECTION
DEGREES GRANTED 1968-1978
By Institution

B = Bachelors
M = Masters
D = Doctorate

July- June-	1968 1969			1969 1970			1970 1971			1971 1972			1972 1973			1973 1974			1974 1975			1975 1976			1976 1977			1977 1978		
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
<u>VIRGINIA</u>																														
University of Virginia, Hospital																			Program started 1976				-	-	-	-	5	-		
Virginia Polytechnic Institute													Program started 1973			19	-	-	21	-	-	-	-	-	-	19	-	-		
<u>WASHINGTON</u>																														
University of Washington.	-	2	-	-	4	-	-	-	-	-	5	-	-	1	1	-	3	-	-	3	-	-	3	-	-	4	-	-	-	-
<u>WISCONSIN</u>																														
University of Wisconsin, Madison	-	1	1	-	-	2	-	2	2	-	3	5	-	4	2	-	4	1	-	6	4	-	6	2	-	5	-	-	-	-
TOTALS	20	129	53	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

APPENDIX A-2

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

 FT = FULL TIME
 PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
ARIZONA											
ARIZONA STATE UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	2		2		1				1		
ENG. OR BASIC SCI., HEALTH PHYS. OPTION	2		2		1				1		
CALIFORNIA											
CALIF. STATE UNIV., LOS ANGELES											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	3		3	1					3		
SAN DIEGO STATE UNIVERSITY											
RADIOLOGICAL HEALTH PHYSICS					2	13				5	
UNIVERSITY OF CALIFORNIA, BERKELEY											
RADIOBIOLOGY OR BIOPHYSICS	25		30		10		90		20	5	10
UNIVERSITY OF CALIFORNIA, LOS ANGELES											
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					10		21	2		3	4
COLORADO											
COLORADO STATE UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					13		1			5	
RADIOBIOLOGY OR BIOPHYSICS					1		15			5	
RADIOECOLOGY					3		2			1	3
UNIV. OF COLORADO MEDICAL CENTER											
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					8		1			4	

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

 FT = FULL TIME
 PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	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		6		9	3	8	2	2	4	2
GEORGIA											
EMORY UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					8	2				7	
GEORGIA INSTITUTE OF TECHNOLOGY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	1				12	2	6	2		11	4
ILLINOIS											
NORTHWESTERN UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.			2		8	1	4	4	3	2	1
UNIVERSITY OF CHICAGO											
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					1		5				3
UNIVERSITY OF ILLINOIS											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					2		1				1
RADIOBIOLOGY OR BIOPHYSICS							1				
INDIANA											
BUTLER UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.							3				
RADIOBIOLOGY OR BIOPHYSICS				1			4				
RADIATION INSTRUMENTATION					2		4				
RADIOPHARMECEUTICAL				1			4				

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
INDIANA (CONTINUED)											
PURDUE UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	6		7		12	2	7	1	7	8	3
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.							2				
ENG. OR BASIC SCI., HEALTH PHYS. OPTION			1								
NUCLEAR PHARMACY					2		5			3	1
ENVIRONMENTAL HEALTH	10		8		8		2	2	10	4	2
IOWA											
UNIVERSITY OF IOWA											
RADIOBIOLOGY OR BIOPHYSICS					6		7			1	2
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.										1	
KANSAS											
UNIVERSITY OF KANSAS											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	4		2		7					2	1
RADIOBIOLOGY OR BIOPHYSICS	4		2		4		8				
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					2		8				
KENTUCKY											
UNIVERSITY OF KENTUCKY											
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					7					5	

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
MARYLAND											
JOHNS HOPKINS UN. SCH. PUB. HEALTH RADIOBIOLOGY OR BIOPHYSICS MED. RAD. PHYSICS OR RADIOLOGICAL PHYS. ENG. OR BASIC SCI., HEALTH PHYS. OPTION					2	2	10	4		2	2
							1				1
MASSACHUSETTS											
HARVARD SCHOOL OF PUBLIC HEALTH HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.							1	1		3	
					3		4			3	1
					6		1	5		1	1
UNIVERSITY OF LOWELL HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	14		5		14	10			11		
MICHIGAN											
UNIVERSITY OF MICHIGAN HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					14	1	5	1			2
MINNESOTA											
UNIVERSITY OF MINNESOTA HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.							1				

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

 FT = FULL TIME
 PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
MISSOURI											
SAINT LOUIS UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	4		1								
UNIVERSITY OF MISSOURI-COLUMBIA											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					8	2	4	1		2	2
BIOENVIRONMENTAL					8	5	9	1		7	2
NEW JERSEY											
RUTGERS UNIVERSITY											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	2		2		6	18			5	1	
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					4	5				1	
RADIATION CHEMISTRY							1				1
AEROSOL PHYSICS								1			
NEW YORK											
CLARKSON COLLEGE											
HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.			1								
RADIOBIOLOGY OR BIOPHYSICS							2				
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.									1		
CORNELL UNIVERSITY, SLOAN-KETTERING DIVISION											
RADIOBIOLOGY OR BIOPHYSICS							3				
MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					1	1				1	
MANHATTAN COLLEGE											
RADIOLOGICAL AND HEALTH SCIENCES	51		43						34		

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
NEW YORK (CONTINUED)											
NEW YORK UNIV. MEDICAL CENTER HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.							8	6		2	3
RENSSELAER POLYTECHNIC INSTITUTE HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. ENG. OR BASIC SCI., HEALTH PHYS. OPTION ENVIRONMENTAL ENGINEERING							4 1	1			
UNIVERSITY OF ROCHESTER HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS							1	6 4		3 3	4
NORTH CAROLINA											
UNIV. OF NORTH CAROLINA, CHAPEL HILL HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.							8 3	2 1			2
OHIO											
OHIO STATE UNIVERSITY RADIOBIOLOGY OR BIOPHYSICS								1			
UNIVERSITY OF CINCINNATI MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.							3	1		1	

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
OKLAHOMA											
OKLAHOMA STATE UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	7		8						15		
UNIVERSITY OF OKLAHOMA OCCUPATIONAL HEALTH					25	5	3	1		10	
OREGON											
OREGON STATE UNIVERSITY-GENERAL SCIENCE HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. RADIOBIOLOGY OR BIOPHYSICS MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					3 5		2	1		4 1	
OREGON STATE UNIVERSITY-NUCLEAR ENGINEERING NUCLEAR ENGINEERING TECHNOLOGY	7		8						7		
PENNSYLVANIA											
DUQUESNE UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.				3					1		
TEMPLE UNIVERSITY HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. NUCLEAR PHARMACY				3	1			1			
UNIV. OF PITTSBURGH GRAD. SCH. OF PUB. HLTH. HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					11	13	5			11	2

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	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	2	2	2	1					2		
VANDERBILT UNIVERSITY MED. RAD. PHYSICS OR RADIOLOGICAL PHYS. ENG. OR BASIC SCI., HEALTH PHYS. OPTION NUCLEAR PHYSICS							1				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	6		9		6		1	1	9	1	4
U. OF TX. HEALTH SCI. CNTR., DALLAS MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					7		2	2		3	1
U. OF TX. HEALTH SCI. CNTR., SAN ANTONIO MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.							4				
VIRGINIA											
UNIVERSITY OF VIRGINIA HOSPITAL MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					3		1	1		5	
VIRGINIA POLYTECHNIC INSTITUTE HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.	26		24						19		

APPENDIX A-2 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION AND SUBFIELDS	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
WASHINGTON											
UNIVERSITY OF WASHINGTON HEALTH PHYS., RAD. HEALTH, OR RAD. PROT.					12	9	5				
WISCONSIN											
UNIVERSITY OF WISCONSIN HEALTH PHYS., RAD. HEALTH, OR RAD. PROT. MED. RAD. PHYSICS OR RADIOLOGICAL PHYS.					16	1	18				
TOTALS	126	53	131	47	315	113	302	42	151	146	63
	179		178		428		344				

APPENDIX A-3

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
CALIFORNIA											
CALIF. STATE UNIV., LOS ANGELES											
FOREIGN NATIONAL MALES									1		
BLACK MALES, U. S. CITIZENS									1		
SPANISH-SURNAMED MALES, U. S. CITIZENS	1										
SAN DIEGO STATE UNIVERSITY											
FOREIGN NATIONAL FEMALES							1				
WHITE FEMALES, U. S. CITIZENS					2	2					
UNIVERSITY OF CALIFORNIA, LOS ANGELES											
FOREIGN NATIONAL MALES								3		1	
FOREIGN NATIONAL FEMALES					1						
WHITE FEMALES, U. S. CITIZENS					1						1
BLACK FEMALES, U. S. CITIZENS								1			
ASIAN AMERICAN MALES, U. S. CITIZENS					1			1	1		
ASIAN AMERICAN FEMALES, U. S. CITIZENS					1						
COLORADO											
COLORADO STATE UNIVERSITY											
FOREIGN NATIONAL MALES								1			1
WHITE FEMALES, U. S. CITIZENS					4			1			
BLACK MALES, U. S. CITIZENS										2	2
BLACK FEMALES, U. S. CITIZENS								1			
AMERICAN INDIAN MALES, U. S. CITIZENS					1						
UNIV. OF COLORADO MEDICAL CENTER											
WHITE FEMALES, U. S. CITIZENS					1					2	
ASIAN AMERICAN MALES, U. S. CITIZENS					1						

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
FLORIDA											
UNIVERSITY OF FLORIDA											
FOREIGN NATIONAL MALES						1		1			
WHITE FEMALES, U. S. CITIZENS	1				1	1		1			
SPANISH-SURNAMED MALES, U. S. CITIZENS					1						
GEORGIA											
EMORY UNIVERSITY											
FOREIGN NATIONAL MALES						1					
WHITE FEMALES, U. S. CITIZENS					1					1	
BLACK MALES, U. S. CITIZENS					1						
GEORGIA INSTITUTE OF TECHNOLOGY											
FOREIGN NATIONAL MALES							2			3	1
WHITE FEMALES, U. S. CITIZENS	1				1	1				1	
BLACK MALES, U. S. CITIZENS							1				
ILLINOIS											
NORTHWESTERN UNIVERSITY											
FOREIGN NATIONAL MALES					3		1			1	
WHITE FEMALES, U. S. CITIZENS				1	1				2		
BLACK MALES, U. S. CITIZENS									1		
SPANISH-SURNAMED MALES, U. S. CITIZENS							1				
UNIVERSITY OF CHICAGO											
FOREIGN NATIONAL MALES					1		3				1
FOREIGN NATIONAL FEMALES							1				

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
ILLINOIS (CONTINUED)											
UNIVERSITY OF ILLINOIS											
FOREIGN NATIONAL MALES											1
WHITE FEMALES, U. S. CITIZENS					1						
33 INDIANA											
BUTLER UNIVERSITY											
WHITE FEMALES, U. S. CITIZENS					1	2					
PURDUE UNIVERSITY											
FOREIGN NATIONAL MALES										1	1
FOREIGN NATIONAL FEMALES								1			
WHITE FEMALES, U. S. CITIZENS	4		5		5	1	3		6	8	1
BLACK MALES, U. S. CITIZENS			1		1		2				
ASIAN AMERICAN FEMALES, U. S. CITIZENS											
IOWA											
UNIVERSITY OF IOWA											
FOREIGN NATIONAL MALES							1			1	
FOREIGN NATIONAL FEMALES							2				
WHITE FEMALES, U. S. CITIZENS					2						
SPANISH-SURNAMED MALES, U. S. CITIZENS							1				

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
KANSAS											
UNIVERSITY OF KANSAS											
FOREIGN NATIONAL MALES	6				4		5				
FOREIGN NATIONAL FEMALES			1				3				
WHITE FEMALES, U. S. CITIZENS	1		1								
KENTUCKY											
UNIVERSITY OF KENTUCKY											
FOREIGN NATIONAL FEMALES					3						
WHITE FEMALES, U. S. CITIZENS					1				1		
MARYLAND											
JOHNS HOPKINS UN. SCH. PUB. HEALTH											
FOREIGN NATIONAL MALES					1		3				
FOREIGN NATIONAL FEMALES						1					
WHITE FEMALES, U. S. CITIZENS							2				
SPANISH-SURNAMED MALES, U. S. CITIZENS							1				
ASIAN AMERICAN MALES, U. S. CITIZENS								1			
ASIAN AMERICAN FEMALES, U. S. CITIZENS								1			
MASSACHUSETTS											
HARVARD SCHOOL OF PUBLIC HEALTH											
FOREIGN NATIONAL MALES					3						
WHITE FEMALES, U. S. CITIZENS					3		1			1	
ASIAN AMERICAN MALES, U. S. CITIZENS					1		1	1			

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
MASSACHUSETTS (CONTINUED)											
UNIVERSITY OF LOWELL											
BLACK MALES, U. S. CITIZENS									1		
MICHIGAN											
UNIVERSITY OF MICHIGAN											
FOREIGN NATIONAL MALES					1						
WHITE FEMALES, U. S. CITIZENS					1	1	1				1
MISSOURI											
SAINT LOUIS UNIVERSITY											
SPANISH-SURNAMED MALES, U. S. CITIZENS				1							
UNIVERSITY OF MISSOURI-COLUMBIA											
FOREIGN NATIONAL MALES							6		2		1
FOREIGN NATIONAL FEMALES					1						
WHITE FEMALES, U. S. CITIZENS					2		1		1		
ASIAN AMERICAN MALES, U. S. CITIZENS					1		1				
ASIAN AMERICAN FEMALES, U. S. CITIZENS							1				
NEW JERSEY											
RUTGERS UNIVERSITY											
WHITE FEMALES, U. S. CITIZENS					1	4	1				1
ASIAN AMERICAN MALES, U. S. CITIZENS					2						

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
NEW YORK											
CORNELL UNIVERSITY, SLOAN-KETTERING DIVISION											
FOREIGN NATIONAL FEMALES					1						
BLACK MALES, U. S. CITIZENS							1				
MANHATTAN COLLEGE											
FOREIGN NATIONAL MALES		1								2	
FOREIGN NATIONAL FEMALES		1								1	
WHITE FEMALES, U. S. CITIZENS		9		11						10	
BLACK MALES, U. S. CITIZENS		5		3						8	
BLACK FEMALES, U. S. CITIZENS		7		9						2	
SPANISH-SURNAMED MALES, U. S. CITIZENS		3		3						2	
SPANISH-SURNAMED FEMALES, U. S. CITIZENS		1		2						1	
ASIAN AMERICAN MALES, U. S. CITIZENS		2								1	
NEW YORK UNIV. MEDICAL CENTER											
FOREIGN NATIONAL FEMALES							2				
WHITE FEMALES, U. S. CITIZENS							1	1			
AMERICAN INDIAN MALES, U. S. CITIZENS							1				
RENSSELAER POLYTECHNIC INSTITUTE											
FOREIGN NATIONAL MALES							1				
SPANISH-SURNAMED MALES, U. S. CITIZENS						1					
UNIVERSITY OF ROCHESTER											
FOREIGN NATIONAL MALES						1					
FOREIGN NATIONAL FEMALES								1			
WHITE FEMALES, U. S. CITIZENS								1			1
SPANISH-SURNAMED MALES, U. S. CITIZENS								1		1	

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME

PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
NORTH CAROLINA											
UNIV. OF NORTH CAROLINA, CHAPEL HILL											
WHITE FEMALES, U. S. CITIZENS							2				
BLACK MALES, U. S. CITIZENS							1				
ASIAN AMERICAN MALES, U. S. CITIZENS							1				
OHIO											
UNIVERSITY OF CINCINNATI											
WHITE FEMALES, U. S. CITIZENS							2				
OKLAHOMA											
OKLAHOMA STATE UNIVERSITY											
WHITE FEMALES, U. S. CITIZENS				1							
BLACK MALES, U. S. CITIZENS				1							
UNIVERSITY OF OKLAHOMA											
FOREIGN NATIONAL MALES							2				
FOREIGN NATIONAL FEMALES							1				
WHITE FEMALES, U. S. CITIZENS							7	1	1		1
BLACK MALES, U. S. CITIZENS											1
OREGON											
OREGON STATE UNIVERSITY-GENERAL SCIENCE											
FOREIGN NATIONAL MALES								1			1
WHITE FEMALES, U. S. CITIZENS							4		1		2
ASIAN AMERICAN MALES, U. S. CITIZENS							1				

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
OREGON (CONTINUED)											
OREGON STATE UNIVERSITY-NUCLEAR ENGINEERING											
FOREIGN NATIONAL MALES	1										
WHITE FEMALES, U. S. CITIZENS			1								
PENNSYLVANIA											
DUQUESNE UNIVERSITY											
WHITE FEMALES, U. S. CITIZENS					2						
TEMPLE UNIVERSITY											
WHITE FEMALES, U. S. CITIZENS			3		1			1			
TENNESSEE											
VANDERBILT UNIVERSITY											
FOREIGN NATIONAL MALES							2				1
TEXAS											
TEXAS A&M UNIVERSITY											
FOREIGN NATIONAL MALES										1	
BLACK MALES, U. S. CITIZENS					1						
U. OF TX. HEALTH SCI. CNTR., DALLAS											
FOREIGN NATIONAL MALES					3						
FOREIGN NATIONAL FEMALES							1				
WHITE FEMALES, U. S. CITIZENS					1			1		1	

APPENDIX A-3 (CONTINUED)

MINORITIES, WOMEN AND FOREIGN NATIONALS
ENROLLMENTS AND DEGREES BY INSTITUTION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

STATE - INSTITUTION	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
TEXAS (CONTINUED)											
U. OF TX. HEALTH SCI. CNTR., SAN ANTONIO FOREIGN NATIONAL MALES								1			
VIRGINIA											
UNIVERSITY OF VIRGINIA HOSPITAL FOREIGN NATIONAL MALES FOREIGN NATIONAL FEMALES								1		1	
VIRGINIA POLYTECHNIC INSTITUTE WHITE FEMALES, U. S. CITIZENS				11						8	
WASHINGTON											
UNIVERSITY OF WASHINGTON FOREIGN NATIONAL MALES WHITE FEMALES, U. S. CITIZENS ASIAN AMERICAN MALES, U. S. CITIZENS						2 1 1		1 1			
WISCONSIN											
UNIVERSITY OF WISCONSIN FOREIGN NATIONAL MALES FOREIGN NATIONAL FEMALES WHITE FEMALES, U. S. CITIZENS						3 1 1		3 1			
TOTALS	15	31	27	28	97	19	76	8	47	35	14
	46		55		116		84				

APPENDIX A-4
RADIATION PROTECTION CURRICULUM
OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION
FALL 1978

HEALTH PHYSICS, RADIATION HEALTH OR RADIATION PROTECTION

UNDERGRADUATE

GRADUATE

Arizona State University.	Arizona 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
Purdue University	Purdue University
University of Kansas.	University of Kansas
	Harvard School of Public Health
University of Lowell.	University of Lowell
	University of Michigan
	University of Minnesota
Saint Louis University	University of Missouri, Columbia
Rutgers University.	Rutgers University
Clarkson College	New York University, Medical Center
	Rensselaer Polytechnic Institute
	University of Rochester
	University of North Carolina, Chapel Hill
Oklahoma State University	
Duquesne University	Oregon State University
	Temple University
	University of Pittsburgh, Graduate School of Public Health
Texas A&M University	
Virginia Polytechnic Institute	University of Washington
	University of Wisconsin

APPENDIX A-4 (Continued)
 RADIATION PROTECTION CURRICULUM
 OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION
 FALL 1978

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
University of Kansas.	University of Kansas
	Johns Hopkins University School of Public Health
	Harvard School of Public Health
	Clarkson College
	Cornell University, Sloan-Kettering Division
	University of Rochester
	Ohio State University
	Oregon State University
	Texas A&M University

MEDICAL RADIATION PHYSICS OR RADIOLOGICAL PHYSICS

	University of California, Los Angeles
	University of Colorado Medical Center
	University of Chicago
	Purdue University
	University of Kansas
	University of Kentucky
	Johns Hopkins University School of Public Health
	Harvard School of Public Health
	Rutgers University
	Cornell University, Sloan-Kettering Division
Manhattan College	

APPENDIX A-4 (Continued)
 RADIATION PROTECTION CURRICULUM
 OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION
 FALL 1978

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 Texas Health Science
 Center, San Antonio
 University of Virginia Hospital
 University of Wisconsin

ENGINEERING OR BASIC SCIENCES, HEALTH PHYSICS OPTION

Arizona State University. Arizona State University
 Purdue University

University of Tennessee, Chattanooga

Johns Hopkins University School of
 Public Health
 Rensselaer Polytechnic Institute
 Vanderbilt University
 Texas A&M University

AEROSOL PHYSICS

Rutgers University

BIOENVIRONMENTAL

University of Missouri, Columbia

APPENDIX A-4 (Continued)
 RADIATION PROTECTION CURRICULUM
 OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION
 FALL 1978

ENVIRONMENTAL ENGINEERING

UNDERGRADUATE

GRADUATE

Rensselaer Polytechnic Institute

ENVIRONMENTAL HEALTH

Purdue University. Purdue University

NUCLEAR ENGINEERING TECHNOLOGY

Oregon State University

NUCLEAR PHARMACY

Temple University. Purdue University
 Temple University

NUCLEAR PHYSICS

Vanderbilt University

OCCUPATIONAL HEALTH

University of Oklahoma

RADIATION CHEMISTRY

Rutgers University

RADIATION INSTRUMENTATION

Butler University

APPENDIX A-4 (Continued)
RADIATION PROTECTION CURRICULUM
OR OPTIONS BY UNDERGRADUATE OR GRADUATE INSTITUTION
FALL 1978

RADIOECOLOGY

UNDERGRADUATE

GRADUATE

Colorado State University

RADIOPHARMECEUTICAL

Butler University. Butler University

APPENDIX A-5

ENROLLMENTS AND DEGREES IN SUBFIELDS BY STATE AND REGION

RADIATION PROTECTION

FT = FULL TIME
PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
REGION I - NEW ENGLAND											
MASSACHUSETTS	14		5		23	10	6	6	11	7	2
TOTAL	14		5		23	10	6	6	11	7	2
REGION II - MIDDLE ATLANTIC											
NEW JERSEY	2		2		10	23	1	1	5	2	1
NEW YORK		51	1	43	7	2	23	6	35	9	7
PENNSYLVANIA			6		12	13	5	1	1	11	2
TOTAL	2	51	9	43	29	38	29	8	41	22	10
REGION III - EAST NORTH-CENTRAL											
ILLINOIS			2		11	1	11	4	3	2	5
INDIANA	16		16	2	24	17	16	3	17	15	6
MICHIGAN					14	1	5	1			2
OHIO					3	1	1			1	
WISCONSIN					16	1	18				
TOTAL	16		18	2	68	21	51	8	20	18	13
REGION IV - WEST NORTH-CENTRAL											
IOWA					6		7			2	2

APPENDIX A-5 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY STATE AND REGION

RADIATION PROTECTION

FT = FULL TIME

PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE		BACH	MASTER	PHD
	FT	PT	FT	PT	FT	PT	FT	PT			
REGION IV - WEST NORTH-CENTRAL (CONTINUED)											
KANSAS	8		4		13		16		2	1	
MINNESOTA							1				
MISSOURI	4		1		16	7	13	2	9	4	
TOTAL	12		5		35	8	36	2	13	7	
REGION V - SOUTH ATLANTIC											
FLORIDA	1		6		9	3	8	2	2	4	2
GEORGIA	1				20	4	6	2	18	4	
MARYLAND					2	2	11	4	2	3	
NORTH CAROLINA					11		3				2
VIRGINIA	26		24		3		1	1	19	5	
TOTAL	28		30		45	9	29	9	21	29	11
REGION VI - EAST SOUTH-CENTRAL											
KENTUCKY					7				5		
TENNESSEE	2	2	2	1	1		4	2	2	1	2
TOTAL	2	2	2	1	8		4	2	2	6	2
REGION VII - WEST SOUTH-CENTRAL											

APPENDIX A-5 (CONTINUED)

ENROLLMENTS AND DEGREES IN SUBFIELDS BY STATE AND REGION

RADIATION PROTECTION

FT = FULL TIME

PT = PART TIME

REGION - STATE	ENROLLMENT - FALL 1978								DEGREES GRANTED		
	UNDERGRADUATE				GRADUATE				JULY 1977 - JUNE 1978		
	JUNIOR		SENIOR		MASTER		DOCTORATE				
	FT	PT	FT	PT	FT	PT	FT	PT	BACH	MASTER	PHD
REGION VII - WEST SOUTH-CENTRAL (CONTINUED)											
OKLAHOMA	7		8		25	5	3	1	15	10	
TEXAS	6		9		13		7	3	9	8	1
TOTAL	13		17		38	5	10	4	24	18	1
REGION VIII - MOUNTAIN											
ARIZONA	4		4		2				2		
COLORADO					25		19			15	3
TOTAL	4		4		27		19		2	15	3
REGION IX - PACIFIC											
CALIFORNIA	28		33	1	22	13	111	2	23	13	14
OREGON	7		8		8		2	1	7	5	
WASHINGTON					12	9	5				
TOTAL	35		41	1	42	22	118	3	30	18	14

APPENDIX B-1

ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERSE WITH ACTIVE PROGRAMS

RADIATION PROTECTION

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

RADIATION PROTECTION

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
Department of 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

Ohio State University
Department of Biophysics
Columbus, Ohio 43210

University of Cincinnati
Department of Radiology
Cincinnati, Ohio 45267

APPENDIX B-1 (Continued)

ADDRESSES OF INSTITUTIONS IN SURVEY UNIVERSE WITH ACTIVE PROGRAMS

RADIATION PROTECTION

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

Oregon State University
Department of Nuclear Engineering
Corvallis, Oregon 97331

Duquesne University
Department of Radiological Health
Pittsburgh, Pennsylvania 15219

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 Tennessee, Chattanooga
Department of Physics
Chattanooga, Tennessee 37401

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, San Antonio
Department of Radiology
San Antonio, Texas 78284

University of Virginia Hospital
Radiology Department
Charlottesville, Virginia 22908

Virginia Polytechnic Institute and
State University
Department of Biology
Blacksburg, Virginia 24061

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
RADIATION PROTECTION

INACTIVE

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

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

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

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

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

DISCONTINUED

Carnegie-Mellon University
St. Francis General Hospital
Department of Radiation Oncology
and Nuclear Medicine
Pittsburgh, Pennsylvania 15201

APPENDIX C

Department of Energy
Washington, D.C. 20545

September 22, 1978

Dear Professor:

You were recently sent a copy of Radiation Protection Enrollments and Degrees, 1977 (DOE/IR-0013), which reported the results of the seventh survey of colleges offering degrees in this field so important to the safe utilization of nuclear power. We are enclosing the forms for recording current (1978) data covering the same subject items.

Because of growing public awareness regarding the development of nuclear energy, there is increased interest in reliable data on the supply of persons trained in the field of radiation protection, particularly among policymakers, planners, employers, educators, and students. Many of these have used the results of past surveys.

The survey is being conducted by the Manpower Research Program unit of Oak Ridge Associated Universities under the sponsorship of the Department of Energy (DOE).

In completing the forms, please include all persons in degree programs which prepare the students to participate in conducting, coordinating, directing, or planning a program for the evaluation and control of radiation hazards for an installation, community, or state agency. A duplicate set of forms for your records and a self-addressed, postage-paid envelope are included for your convenience. We would greatly appreciate receiving your completed questionnaire by October 30, 1978. Please enclose with the questionnaire the latest literature describing your program so that DOE staff can keep current on your program content.

If you have any questions about the questionnaire, please call collect to Dr. Larry Blair, Oak Ridge Associated Universities, (615) 483-8411, extension 371.

APPENDIX C (Continued)

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We appreciate your continuing cooperation in this project and would be pleased to receive any comments you have on the survey content or form. Thank you again for your time and interest.

Sincerely,

Norman Seltzer
Deputy Director for Manpower Assessment
Division of Labor Affairs and Manpower
Assessment

APPENDIX C (Continued)

DOE Form IR-617

U.S. Department of Energy

FORM APPROVED
OMB NO. 38-R0176

IMPORTANT: Please see instructions on reverse side
before completing this form.

RADIATION PROTECTION ENROLLMENT AND DEGREE SURVEY: 1978

Name of Institution										1		6 7 City		28 State		31 32 Zip Code		36			
37 Department(s) Reporting										61 62		67		79 80		1		6 7		Name of Official Supplying Data	
37 Title of Official Supplying Data										66 67		69 70		76 79 80						36	
																				A2	

SCHOOL NUMBER (Leave Blank)	RADIATION PROTECTION CURRICULUM OR OPTION (See Instruction a.)	C C O O R D I N A T E	ENROLLMENT FALL 1978																DEGREES GRANTED						C A R D		
			UNDERGRADUATES								MASTER CANDIDATES				DOCTORATE CANDIDATES				July 1977-June 1978								
			Junior Year				Senior Year				Full-Time		Part-Time		Full-Time		Part-Time		Bachelor	Master	Doctorate						
			Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	33	35	36	38	39	41					
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																								11
		Female	6A																								
	White, U.S. Citizens	Male	70																								11
		Female	7A																								
	Blacks, U.S. Citizens	Male	72																								11
		Female	7B																								
	Spanish-surnamed, U.S. Citizens	Male	73																								11
		Female	7C																								
	Asian Americans, U.S. Citizens	Male	74																								11
		Female	7D																								
	American Indians, U.S. Citizens	Male	75																								11
		Female	7E																								
Data supplied above may be published in listings by individual institutions.			Remarks:																								
Authorized Signature _____ Date _____																											

APPENDIX C (Continued)

U.S. Department of Energy

IR/EBLA/LAMA
Washington, D.C. 20545

Radiation Protection Enrollment and Degree Survey

INSTRUCTIONS FOR COMPLETING DOE FORM IR-617

This survey is conducted by the U.S. Department of Energy as part of its continuing effort to assure itself and its contractors a supply of well prepared experts in the nuclear field. With this questionnaire we hope 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.

PLEASE READ THE FOLLOWING INSTRUCTIONS BEFORE FILLING OUT THE QUESTIONNAIRE:

- Instr. a. **Curriculum.** Using a separate line for each major program, report **only** curricula which prepare students to participate in conducting, coordinating, directing, or planning a program for the evaluation and control of radiation hazards for an installation, community, or state agency.
Combine very small specialties with related major areas.
- Instr. b. Report only students enrolled definitely as candidates for a degree. Report co-op students* as being enrolled full-time. If exact figures are not available, please give best estimate and indicate by "E" after the estimated number.
- Instr. c. **Pre-Doctoral Degree.** Enrollments for professional degrees beyond the bachelor's are to be included with master's degree enrollments to simplify this report. Also see Instr. d.
- Instr. d. **Doctoral Programs.** Report only enrollments specifically leading to a doctorate. If ultimate graduate degree is uncertain, report as master candidates.
- Instr. e. **Women, Minorities, Foreign Students.** Requests for information about women and minorities are numerous. The number of foreign nationals is important to predicting manpower supplies. Therefore, please provide as accurate a breakout as possible. Blanks will be treated as zeros.

**For purposes of this survey, a co-op student is defined as one who alternates sessions of schooling with sessions of employment in a position related to his academic specialty.*

APPENDIX C (Continued)

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 1977-June 1978 reported on DOE Form IR-617.

NOTE: "Graduates Returning to previously held jobs" and "Foreign Nationals" should also be included in "Total Graduates."

PLACEMENT OR PLANS AFTER GRADUATION	BACHELORS			MASTERS			DOCTORATES		
	Total Graduates	Graduates Returning to Previously Held Jobs	Foreign Nationals	Total Graduates	Graduates Returning to Previously Held Jobs	Foreign Nationals	Total Graduates	Graduates Returning to Previously Held Jobs	Foreign Nationals
Further study									
U.S. Academic employment (show students employed part time under further study)									
Federal Government employment									
GOVERNMENT-owned, Con- tractor-operated installa- tions employment (GOCO's)									
State and Local Government employment									
Medical Facilities (Including Teaching Hospitals) Employment									
Industrial employment within U.S.									
Employment with foreign employer									
U.S. Military service									
Other (specify)									
Still seeking employment									
Unknown									