Diversity in Backgrounds, Careers a Major Theme in Survey of Master's Graduates

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Table 1: Bachelor's Degree Field (Math- and Statistics-Related Fields Listed First)

Undergraduate Major	n
Mathematics	89
Statistics	69
Applied Statistics	32
Data Science	16
Actuarial Science	10
Statistics & Machine Learning	8
Biostatistics	6
Business Analytics	2
Economics	29
Biology	21
Biochemistry/Chemistry	15
Computer Science	13
Other	11
Psychology	6
Engineering, Mechanical	5
Political Science	5
Physics	4
Sociology	4
Accounting	4

Table 2: Post-Degree Outcome

	N	Percent
Employed (full and part-time)	201	60%
Student	93	28%
Unemployed Seeking	18	5%
Left US	17	5%
Other	8	2%

Table 3: Median and Quartile Salary by Gender

	n	Quartile 1 ($K)	Median ($K)	Quartile 3 ($K)
	143	68.2	81.3	104.3
Female	59	66.6	78.7	95.0
Male	81	72.0	85.0	110.0

Table 4: Specific Field of Master's Degree and Median Salary for n>5 (N Is the Total Number of Respondents Indicating That Field, n of Which Provided Their Salary)

Master's Degree Field	N	Salary – 2023			
		n (female)	Median ($K)	Female ($K)	Male ($K)
General Statistics	104	45 (9)	80.0	105.0	80.0
Applied Statistics	73	33 (15)	76.0	68.0	105.0
Statistics and machine learning	26	13 (2)	90.0		
Data Science	16	14 (4)	85.0		
Informatics	1				
Biostatistics	97	49 (26)	80.0	83.5	77.0
Math, with stats focus	10	6 (3)	106.4		
Data science	24	14 (4)	85.0		
Other	3				

Table 5: Employment Sector with Median Salary by Gender for n>4

		Median Salary ($K)		
SECTOR and subsector	**n (Female)**	**Overall**	**Female**	**Male**
Educational institution	39 (20)	68.0	63.8	68.0
-Four-year college or university	18 (7)	65.0	66.5	65.0
-University-affiliated research center	18 (11)	70.0	70.0	72.5
Private sector	86 (24)	95.0	92.5	92.0
-Company or business	75 (22)	95.0	95.0	95.0
-Government contractor	5 (0)	98.8		98.8
-Consulting	6 (2)	78.0		76.0
Government	17 (6)	90.0	74.8	96.0
-Civilian government	14 (5)	75.3	71.0	84.0
-Government lab	2 (1)			
-Active military	1 (0)			
Non-profit organization	7 (5)	87.9	87.9	95.5
Hospital or medical facility	11 (2)	79.0		87.5
Other	2 (2)			

Table 7: Frequency of General Work Skills

Question	Rarely or Never	Monthly	Weekly	Daily	Total
Work on a team	5.4%	8.1%	34%	53%	185
Teaching	66%	18%	8.6%	7.0%	185
Public speaking	44%	29%	20%	8.0%	184
Work with customers or clients	43%	18%	21%	19%	183
Manage people	77%	6.6%	10%	6.0%	174
Manage projects	25%	14%	20%	41%	181
Manage finances or budgets	83%	8.3%	5.0%	3.9%	180
Manage databases	56%	18%	14%	13%	176
Perform quality control	32%	17%	23%	29%	181
Solve technical problems	5.0%	7.7%	14%	73%	181
Technical writing	22%	33%	28%	17%	183
Non-technical writing	21%	22%	27%	30%	182

Table 8: Frequency or Research, Statistical, and Other Technical Skills

Question	Rarely or Never	Monthly	Weekly	Daily	Total
Use statistics or advanced math	12%	14%	22%	52%	178
Analyze and interpret data	5.6%	5.1%	12%	78%	178
Query databases	15%	17%	19%	49%	177
Use or develop statistical models	22%	25%	19%	35%	177
Design experiments	61%	23%	9.7%	6.2%	176
Survey research	65%	17%	13%	5.1%	176
Programming or systems software	10%	4.6%	8.6%	77%	175
Tech support or computer administration	82%	9.7%	4.0%	4.0%	176
Use machine learning models	42%	24%	19%	16%	178
Develop machine learning models	59%	22%	7.3%	11%	177
Use generative AI algorithms	70%	15%	6.2%	9.6%	178
Data cleaning	15%	9.1%	27%	49%	176
Data processing	12%	12%	22%	54%	176
Develop AI algorithms	83%	9.6%	2.8%	4.5%	178

Table 9: Frequency of Statistical Programs/Software Use

Question	Rarely or Never	Monthly	Weekly	Daily	Total
R	28%	22%	16%	34%	173
SAS	61%	12%	9.4%	18%	161
Excel	17%	14%	25%	44%	174
Python	42%	18%	9.8%	30%	169
Java	98%	0%	2.3%	0%	163
SQL	42%	13%	12%	32%	173
Tableau	80%	11%	6.4%	3.5%	171
Other	52%	12%	18%	18%	50

2019

Table 9: Frequency of Statistical Programs/Software Use

Question	Rarely or Never	Monthly	Weekly	Daily	Total
R	24.88%	21.89%	13.43%	39.80%	201
SAS	55.45%	7.43%	4.46%	32.67%	202
JMP	93.09%	4.26%	2.13%	0.53%	188
Minitab	97.89%	0.53%	1.05%	0.53%	190
SPSS	92.59%	6.35%	0.53%	0.53%	189
Python	58.46%	15.38%	9.74%	16.41%	195
Java	94.15%	4.79%	0.00%	1.06%	188
SQL	42.71%	15.10%	11.46%	30.73%	192
Tableau	78.65%	9.38%	5.73%	6.25%	192
Excel	12.50%	9.50%	25.00%	53.00%	200
Other	38.46%	7.69%	17.95%	35.90%	39

2024

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Excel	17%	14%	25%	44%	174
Python	42%	18%	9.8%	30%	169
Java	98%	0%	2.3%	0%	163
SQL	42%	13%	12%	32%	173
Tableau	80%	11%	6.4%	3.5%	171
Other	52%	12%	18%	18%	50

Table 10: Percent of Respondents Using Programs/Software Packages Daily by Master's Discipline

	Applied Statistics	Biostatistics	General Statistics	Statistics & ML	Data Science
Excel	62% (37)	39% (49)	39% (51)	43% (14)	40% (15)
Python	27% (37)	16% (49)	32% (50)	57% (14)	47% (15)
R	24% (37)	47% (49)	40% (50)	21% (14)	20% (15)
SAS	5% (37)	37% (49)	12% (49)	8% (13)	20% (15)
SQL	24% (37)	18% (49)	32% (50)	93% (14)	53% (15)

** The number in parentheses is the approximate number of responses for each category.*

MORE ONLINE
For supplemental material that accompanies this article, visit the online version at *bit.ly/48fOZCt.*

MORE ONLINE
The ASA examines the NCES degree completion data annually and posts the statistics and biostatistics data at *bit.ly/40acCdP.*

Quiz 1

Suppose you have a treatment that you suspect may alter performance on a certain task. You compare the means of your control and experimental groups (say 20 subjects in each sample). Further, suppose you use a simple independent means *t*-test and your result is significant ($t = 2.7$, d.f. $= 18$, $p = 0.01$). Please mark each of the statements below as "true" or "false." "False" means that the statement does not follow logically from the above premises. Also note that several or none of the statements may be correct.

- Take 2 sheets of paper – or one sheet and tear it in two.
- Write your name on one sheet.
- Answer the following questions on the other sheet.
- Just write the numbers 1 to 6 and T or F next to each number.

1.You have absolutely disproved the null hypothesis (that is, there is no difference between the population means). T or F

2. You have found the probability of the null hypothesis being true. T or F

3. You have absolutely proved your experimental hypothesis (that there is a difference between the population means). T or F

4. You can deduce the probability of the experimental hypothesis being true. T or F

5.You know, if you decide to reject the null hypothesis, the probability that you are making the wrong decision. T or F

6. You have a reliable experimental finding in the sense that if, hypothetically, the experiment were repeated a great number of times, you would obtain a significant result on 99% of occasions. T or F

– Hand in both sheets at the end of class