Sixth Triennial Toxicology Salary Survey

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The 2004 Triennial Toxicology Salary Survey was conducted as a joint project by the American College of Toxicology and the Society of Toxicology. In addition to the two parent organizations, 20 others (the Teratology Society, the Association of Government Toxicologists, and 17 regional chapters of the Society of Toxicology) supported the effort by providing mailing labels for their membership.

A total of 5507 survey instruments were mailed in November of 2004, with 214 of these eventually being returned as undeliverable, making the effective mailing 5293. As of May 7, 2005, 1251 responses had been received, or a response rate of 23.6%. This is comparable to the response rates for 1988 (Gad 1989), 1991 (Gad 1992), 1995 (Gad 1996), 1998 (Gad, 1999) and 2001 (Gad, 2002). The survey instrument was essentially the same as that used in the previous (fifth) survey. It should be noted that there continues to be a significant increase in the number of individuals reporting six-figure incomes and in those receiving significant sums as bonuses, as is reflected particularly in Tables 1 and 4. Survey methodology employed conformed to standard procedures (Rossi, Wright, and Anderson 1983), though the response rate for this survey remains high for such endeavors.

Salary estimates for purposes of calculation were taken to be the midpoint of the range, e.g. the salary range of $90,000–$99,000 was estimated at $95,000. In addition, there were a significant number of incomplete responses that required further estimation. The incomplete responses and the methods used to handle them were:

- Thirty (30) respondents did not indicate a gender. These results were not included in the breakdowns.
- Seventy (70) respondents indicated a salary >$150,000 without writing in the actual amount in the area provided. The salary used for calculation was $165,000. This probably led to a bias towards lower average values.
- Ten (10) respondents indicated an additional professional income >$20,000 without writing in the actual amount. The amount used for calculation was $25,000.
- Eleven (11) respondents indicated stock options as part or all of their bonus without listing the value of such options. These options were not counted towards the total bonus.
- Fifty-five (55) respondents indicated they received bonuses, commission, stock options, or profit sharing without indicating the amount. The amount estimated for this was $23,600, which was the mean value of the reported or estimable responses in this category.

A total of 1000 of the respondents (699 men; 286 women; 15 no response) were full-time employed holders of doctoral degrees in the U.S. and Canada. Table 1 presents the mean salaries (± one standard deviation) for these individuals, sorted by years of experience after receipt of their degrees, sex, and field of employment. Salaries are in thousands of U.S. dollars per year.

The mean salaries (± 1 SD) for the 106 master's level respondents are presented in Table 2. Likewise, the results from the 46 bachelor's level respondents are presented in Table 3. The remaining respondents were not employed full time during the reporting period and are characterized as follows:

Graduate students 10
Working part-time 21
Unemployed 6
Retired 15
Post-Doctoral 36
Other 10

It should be noted that the response levels for these additional categories are considerably lower than for the 2001 survey. For comparison, the 2001 numbers were:

Graduate students (not differentiated)
Working part-time 118

Unemployed 38
Retired 147
Post-Doctoral 74
Other (not differentiated)
There were no associates degree respondents.

Table 4 presents a summary of data on those 544 (54.4% of all employed) doctoral recipients who received bonuses in addition to salary. Table 5 presents a summary of the geographic distribution of the doctoral level survey respondents. Table 6 summarizes the major professional society memberships of the respondents. Many respondents belong to more than one society.

Table 7 summarizes, according to the National Research Council (NRC), the numbers of individuals who have received their doctorates in toxicology since 1983 (the first year that the degree was included in the NRC annual summary) (National Research Council 1998). Also included is a summary of the number of doctoral respondents by years post-degree.

Table 8 provides a summary analysis of the influence of geographic location of place of employment on salaries for doctoral level employees. Table 9 provides a summary of the influence of certification on doctoral and master's level salaries. Finally, Table 10 presents an overview of the number of individuals who are self-employed, independent consultants.

It has been proposed that this survey be conducted by email in the future. In the 2001 survey, respondents were asked if they had email access for such purposes. Of those employed full time that responded to the question, over 92% (1405) of those with doctoral degrees, 87% (130) of those with masters degrees, and 58% (73) of those with bachelors degrees reported having email access. However, as was widely noted, an email based system would not provide anonymity.

Discussions and Conclusions

The 2004 survey results point to a number of different trends that deserve attention and add some insights into the job market, career path, and the conduct of future studies. First, although the situation has clearly improved for most entry-level and early-career positions, women continue to be compensated at a lower level than their male counterparts. Secondly, salaries as a whole have increased in the field, but the most impressive differences are not by geographic location of place of employment, but rather by type of employer. Finally, certification continues to play a significant positive role in compensation.

TABLE 1
2004 Doctoral Level Salaries

Employer	**Sex**	**Years experience post-terminal degree**					
		0-1	**1-3**	**3-5**	**5-10**	**10-20**	**20+**
Contract Laboratory	M	---	75 ± 0 (2)	81 ± 12 (8)	95 ± 35 (10)	117 ± 24 (18)	141 ± 44 (37)
	F	38 ± 39 (2)	78 ± 6 (3)	90 ± 17 (4)	75 ± 14 (4)	119 ± 33 (6)	121 ± 27 (8)
State or Local Government	M	---	---	---	85 ± 14 (2)	103 ± 50 (7)	90 ± 23 (20)
	F	45 ± NC (1)	55 ± NC (1)	---	65 ± 14 (4)	78 ± 8 (6)	83 ± 19 (5)
Federal Goverment	M	---	---	78 ± 10 (7)	78 ± 13 (4)	90 ± 12 (21)	115 ± 18 (43)
	F	55 ± NC (1)	68 ± 6 (3)	75 ± NC (1)	87 ± 10 (9)	98 ± 18 (13)	116 ± 18 (12)

Academic	M	45 ± NC (1)	55 ± NC (1)	25 ± NC (1)	70 ± 17 (14)	99 ± 37 (26)	125 ± 38 (94)
	F	45 ± NC (1)	53 ± 15 (4)	58 ± 15 (3)	63 ± 19 (17)	79 ± 15 (19)	108 ± 28 (16)
Development or Sales	M	---	---	---	---	105 ± NC (1)	138 ± 46 (3)
	F	---	---	---	---	---	105 ± NC (1)
Consulting (with a firm)	M	45 ± NC (1)	---	65 ± NC (1)	99 ± 23 (7)	157 ± 77 (9)	138 ± 67 (20)
	F	75 ± NC (1)	105 ± NC (1)	88 ± 17 (4)	60 ± 7 (2)	95 ± 12 (5)	135 ± 42 (2)
Consulting (independant)	M	---	---	---	---	208 ± 60 (2)	156 ± 89 (30)
	F	---	---	---	---	130 ± 45 (5)	137 ± 28 (5)
Pharmaceutical Industry	M	---	110 ± 35 (2)	98 ± 14 (15)	113 ± 17 (43)	145 ± 34 (72)	165 ± 38 (58)
	F	108 ± 23 (3)	93 ± 8 (5)	86 ± 6 (8)	113 ± 17 (12)	142 ± 30 (33)	167 ± 38 (6)
Chemical Industry	M	75 ± NC (1)	85 ± 14 (2)	78 ± 6 (3)	91 ± 17 (9)	116 ± 28 (12)	127 ± 23 (26)
	F	---	75 ± NC (1)	95 ± NC (1)	95 ± 9 (8)	108 ± 20 (7)	123 ± 15 (4)
Consumer Products	M	---	85 ± NC (1)	---	105 ± 15 (7)	137 ± 29 (14)	155 ± 31 (17)
	F	---	85 ± NC (1)	85 ± NC (1)	110 ± 7 (2)	109 ± 13 (8)	90 ± 21 (2)
Others	M	65 ± NC (1)	---	---	105 ± 24 (4)	141 ± 40 (8)	152 ± 108 (13)
	F	35 ± NC (1)	---	95 ± NC (1)	75 ± NC (1)	120 ± 17 (4)	136 ± 24 (8)

NC=Not Calculable
All numbers are Mean ± 1 Standard Deviation (# of respondants)

TABLE 2
2004 Master Level Salaries

Employer	**Sex**	**Years experience post-terminal degree**					
		0-1	**1-3**	**3-5**	**5-10**	**10-20**	**20+**

Contract Laboratory	M	---	75 ± NC (1)	---	---	105 ± NC (1)	88 ± 6 (3)
	F	---	35 ± NC (1)	135 ± NC (1)	65 ± NC (1)	55 ± NC (1)	135 ± NC (1)
State or Local Government	M	---	25 ± NC (1)	---	---	---	---
	F	---	---	---	35 ± NC (1)	---	---
Federal Government	M	---	---	---	---	80 ± 7 (2)	100 ± 7 (2)
	F	---	---	---	65 ± NC (1)	105 ± NC (1)	105 ± NC (1)
Academic	M	---	---	---	10 ± NC (1)	---	---
	F	---	35 ± NC (1)	45 ± NC (1)	---	---	---
Development or Sales	M	---	---	---	---	---	---
	F	---	---	---	---	---	---
Consulting (with a firm)	M	---	---	65 ± 14 (2)	75 ± 26 (3)	135 ± 0 (2)	90 ± 7 (2)
	F	---	---	65 ± NC (1)	105 ± NC (1)	78 ± 23 (3)	---
Consulting (independant)	M	---	---	---	---	---	85 ± NC (1)
	F	---	---	---	---	98 ± 35 (3)	65 ± NC (1)
Pharmaceutical Industry	M	75 ± NC (1)	65 ± 14 (2)	115 ± NC (1)	105 ± 26 (3)	123 ± 36 (4)	129 ± 38 (5)
	F	---	---	55 ± 0 (2)	88 ± 21 (3)	121 ± 19 (5)	110 ± 17 (4)
Chemical Industry	M	---	---	---	77 ± 25 (5)	85 ± NC (1)	118 ± 18 (7)
	F	---	55 ± NC (1)	---	75 ± NC (1)	99 ± 34 (5)	105 ± NC (1)
Consumer Products	M	---	---	---	---	108 ± 25 (3)	120 ± 21 (2)
	F	---	95 ± NC (1)	---	---	80 ± 7 (2)	105 ± NC (1)
Other	M	---	---	---	55 ± NC (1)	---	---
	F	---	---	---	115 ± 35 (3)	55 ± 0 (2)	135 ± NC (1)

NC=Not Calculable
All numbers are Mean ± 1 Standard Deviation (# of respondants)

TABLE 3
2004 Bachelor Level Salaries

Employer	Sex	Years experience post-terminal degree					
		0-1	1-3	3-5	5-10	10-20	20+
Contract Laboratory	M	---	---	---	45 ± NC (1)	95 ± 57 (2)	79 ± 17 (5)
	F	---	75 ± NC (1)	---	55 ± NC (1)	75 ± NC (1)	75 ± 0 (2)
State or Local Government	M	---	---	---	---	---	75 ± NC (1)
	F	---	---	---	---	---	---
Federal Government	M	---	---	---	---	---	115 ± NC (1)
	F	---	---	35 ± NC (1)	---	---	95 ± NC (1)
Academic	M	---	---	---	---	---	---
	F	---	---	---	---	45 ± NC (1)	55 ± NC (1)
Development or Sales	M	---	---	---	---	---	75 ± NC (1)
	F	---	---	---	---	---	---
Consulting (with a firm)	M	---	---	---	---	70 ± 49 (2)	135 ± NC (1)
	F	---	---	---	---	---	---
Consulting (independant)	M	---	---	---	---	---	---
	F	---	---	---	---	---	---
Pharmaceutical Industry	M	---	---	---	75± NC (1)	70 ± 7 (2)	95 ± 14 (5)
	F	---	---	---	75± NC (1)	75± NC (1)	118 ± 60 (2)
Chemical Industry	M	---	---	---	---	---	123 ± 33 (3)
	F	---	---	---	---	---	95 ± 14 (2)
Consumer Products	M	---	---	---	---	---	---
	F	---	---	---	---	80 ± 7 (2)	---
Other	M	---	---	---	---	---	100 ± 7 (2)
	F	---	---	---	---	---	---

NC=Not Calculable
All numbers are Mean ± 1 Standard Deviation (# of respondants)

TABLE 4
2004 Doctoral Level Bonuses

Employer	Years experience post-terminal degree						
	Sex	0-1	1-3	3-5	5-10	10-20	20+
Contract Laboratory	M	---	2 ± NC (1)	6± 3 (1)	14 ± 14 (6)	16± 16 (14)	14 ± 27 (20)
	F	---	3± NC (1)	12 ± 9 (4)	24 ± NC (1)	21 ± 26 (1)	5± 4 (4)
State or Local Government	M	---	---	---	---	---	---
	F	---	---	---	---	---	---
Federal Government	M	---	---	2 ± 1 (2)	2 ± NC (1)	2 ± 2 (7)	6 ± 8 (9)
	F	---	1± NC (1)	---	1 ± 1 (3)	2± 2 (3)	2 ± 1 (6)
Academic	M	---	---	---	10 ± NC (1)	11 ± 18 (6)	21 ± 23 (14)
	F	---	---	---	1 ± NC (1)	1 ± NC (1)	17 ± 10 (2)
Development or Sales	M	---	---	---	---	---	---
	F	---	---	---	---	---	---
Consulting (with a firm)	M	---	---	---	14 ± 11 (5)	29 ± 26 (7)	63 ± 109 (12)
	F	---	10 ± NC (1)	8 ± 4 (3)	---	4± 3 (4)	12 ± 16 (2)
Consulting (independant)	M	---	---	---	---	24 ± NC (1)	74 ± 85 (4)
	F	---	---	---	---	89 ± 72 (2)	---
Pharmaceutical Industry	M	---	22 ± 22 (2)	12 ± 11 (1)	16 ± 13 (42)	31 ± 19 (68)	48 ± 61 (53)
	F	15± NC (1)	11 ± 8 (5)	11 ± 9 (8)	18± 10 (12)	27 ± 22 (30)	32 ± 26 (6)
Chemical Industry	M	24 ± NC (1)	5± 3 (2)	5± 1 (2)	7± 5 (9)	15 ± 10 (11)	21 ± 13 (20)
	F	---	4 ± NC (1)	4 ± NC (1)	8 ± 8 (6)	16 ± 9 (6)	10 ± 5 (3)

Consumer Products	M	---	2 ± NC (1)	---	25 ± 26 (7)	31 ± 21 (12)	42 ± 30 (15)
	F	---	10 ± NC (1)	4 ± NC (1)	13 ± 16 (2)	14 ± 15 (6)	15 ± NC (1)
Other	M	---	---	---	16 ± 10 (3)	25 ± 16 (6)	19 ± 16 (9)
	F	---	---	24 ± NC (1)	---	10 ± 6 (3)	113 ± 264 (8)
NC=Not Calculable All numbers are Mean ± 1 Standard Deviation (# of respondants)							

TABLE 5
Geographic Distribution of Employed Doctoral Respondents

State:	**Number of Respondents:**	**State:**	**Number of Respondents:**
Alabama	5	New Hampshire	2
Alaska	5	New Jersey	76
Arkansas	4	New Mexico	9
Arizona	9	Nevada	3
California	106	New York	50
Colorado	10	North Carolina	98
Connecticut	23	North Dakota	1
District of Columbia	29	Ohio	51
Delaware	9	Oklahoma	3
Florida	11	Oregon	7
Georgia	13	Pennsylvania	45
Idaho	1	Puerto Rico	3
Illinois	28	Rhode Island	1
Indiana	24	South Carolina	2

Iowa	5	South Dakota	0
Kansas	8	Tennessee	9
Kentucky	5	Texas	43
Louisiana	6	Utah	1
Maine	2	Virginia	28
Maryland	59	Washington	22
Massachusetts	30	Wisconsin	14
Michigan	42	West Virginia	1
Minnesota	20	Wyoming	1
Missouri	5	Armed Forces Europe	1
Mississippi	7	Canada	0
Montana	2	Other	France (1); Netherlands (2); UK (2)
Nebraska	2	Not reported or illegible	49

TABLE 6
Society Affiliations of Doctoral Respondents

Society:	**Number Belonging:**
SOT (Society of Toxicology)	**1171**
ACT (American College of Toxicology)	**306**
Teratology Society	**81**
SETAC (Society of Environmental Toxicology and Chemistry)	**80**
SRA (Society for Risk Assessment)	57
ACS (American Chemical Society)	53
(EMS) Environmental Mutagen Society	**43**

AACR (American Association for Cancer Research)	41
ASPET (American Society for Pharmacology and Experimental Therapeutics)	40
ISSX (International Society for the Study of Xenobiotics)	40
STP (Society of Toxicologic Pathology)	30
AAAS (American Association for the Advancement of Science)	29
AIHA (American Industrian Hygiene Association)	20
ISRTP (International Society for Regulatory Toxicology and Pharmacology)	16
ABT (American Board of Toxicology)	14
SFN (Society for Neuroscience)	13
ACVP (American College of Veterinary Pathologists)	12
DIA (Drug Information Association)	11
AAPS (Association of American Physicians and Surgeons)	10
MASOT, AVMA, NBTS, SSR, ASBMB, ASM, ATS, MARTA, ASCP, FASEB, ISEA, RAPS, STC, AACT, AAI, AGT, APHA, SQA, AAR, AALAS, ACGIH, ASIP, NYAS, Sigma Xi, SOFT, SPS, AAA, AACC, AAVCT, APS, ASCB, ASCB, ASTM, Endocrine Society, Eurotox, GTA, SCHC, AAFS, AAI, ABFE, ABVT, ACOEM, AFS, ASAS, ASCO, ASNS, BTS, ESA, IACT, IFT, ISEE, ISOT, RSA, RTC, SER, SID, SLB, SOEH, AACAS, AACP, AADR, AAIH, AALAC, AAMI, AAP, AAPCC, AAPSE, AASLD, AAVA, AAVCT, AAVT, ABA, ABSA, ABUT, ACCP, ACGI, ACH, ACHMM, ACLAM, ACRP, ACTM, ACUP, ACUT, ADSA, AGGIA, AGGIH, AGU, AHAS, AIT, ALAS, AOAC, APA, ARVD, ARVO, ASA, ASAREA, ASBC, ASBMB, ASBMR, ASDM, ASFS, ASHG, ASLO, ASN, ASN, ASP, ASR, ASRM, ASSE, AST, ASTMH, ASTS, ASHG, ASLO, ASN, ASN, ASP, ASR, ASRM, ASRM, ASSE, AST, ASTMH, ASTS, ASVCP, ATA, AVPT, AYMA, Biochemical Society, BTA, BTS, CPDD, FST, GFTCH, HESI, HPS, IAQA, IBRO, ISAC, ISACB, ISEH, ISHE, ISIAQ, ISSC, JPET, MAFS, MANY, MATT, MSA, MTA, NAEM, NCAC-SOT, NEHA, Netherlands Society of Toxicology, NSH, PANWAT, PNIRS, RASCC, RTP, SCI, SDB, SEBM, SEGH, SFRBM, SGI, SoCRA, SON, SPE, SRNT, SSAR, SSPD, STRP, TIR, WDA, Wildlife Society	<10*

Bold Societies were specifically listed on the survey
*Remaining Societies are listed in descending number of members, then alphabetically

TABLE 7
Recipients of Doctoral Degrees (and Survey Respondents) in Toxicology by Year

Year	Graduates	Survey years post-degree/respondents
1981		20 + = 462
1982		
1983	60	
1984	97	
1985	98	10-20 = 311
1986	104	
1987	115	

1988	111	
1989	91	
1990	86	
1991	104	
1992	99	
1993	94	
1994	87	
1995	84	5-10 =168
1996	86	
1997	82	
1998	80	
1999	80	
2000	78	3-5 = 67
2001	?	
2002	?	1-3 = 46
2003	?	
2004	?	0-1 = 23

TABLE 8
Geographic Comparison: Doctoral Salaries

State	Sex	Years experience post-terminal degree					
		0-1	1-3	3-5	5-10	10-20	20 +
California (106)	M	---	75 ± NC (1)	135 ± NC (1)	120 ± 29 (11)	133 ± 48 (20)	122 ± 50 (27)
	F	35 ± NC (1)	83 ± 21 (4)	95 ± 8 (8)	111 ± 32 (9)	114 ± 25 (14)	140 ± 39 (9)
North Carolina (98)	M	---	55 ± NC (1)	95 ± NC (1)	104 ± 14 (13)	131 ± 55 (17)	146 ± 77 (35)
	F	---	75 ± NC (1)	85 ± 14 (2)	86 ± 13 (7)	102 ± 19 (16)	120 ± 18 (11)

New Jersey (76)	M	75 ± NC (1)	---	92 ± 6 (3)	115 ± 22 (13)	141 ± 53 (17)	147 ± 52 (25)
	F	---	70 ± 21 (2)	100 ± 21 (2)	113 ± 17 (4)	125 ± 17 (13)	118 ± 15 (3)
Maryland (59)	M	65 ± NC (1)	65 ± NC (1)	100 ± 7 (2)	85 ± 17 (3)	105 ± 17 (11)	126 ± 24 (18)
	F	95 ± NC (1)	60 ± 7 (2)	85 ± 17 (3)	95 ± 14 (4)	108 ± 21 (7)	136 ± 27 (4)
New York (50)	M	---	88 ± 6 (3)	90 ± 7 (2)	105 ± NC (1)	113 ± 26 (6)	141 ± 25 (22)
	F	95 ± NC (1)	65 ± NC (1)	90 ± 7 (2)	95 ± NC (1)	117 ± 46 (8)	135 ± 0 (2)
NC=Not Calculable All numbers are Mean ± 1 Standard Deviation (# of respondants)							

TABLE 9
Board Certification and Doctoral Salaries

Certification Status	**Sex**	**Years experience post-terminal degree**					
		0-1	**1-3**	**3-5**	**5-10**	**10-20**	**20 +**
Certified	M	55 ± NC (1)	135 ± NC (1)	83 ± 22 (15)	107 ± 21 (56)	134 ± 38 (129)	140 ± 61 (241)
	F	135 ± NC (1)	70 ± 7 (2)	92 ± 7 (15)	97 ± 23 (9)	120 ± 31 (65)	129 ± 31 (49)
North Carolina (98)	M	67 ± 37 (5)	85 ± 32 (15)	83 ± 18 (27)	100 ± 28 (54)	115 ± 45 (101)	128 ± 37 (137)
	F	65 ± 22 (9)	70 ± 17 (25)	82 ± 24 (21)	85 ± 27 (37)	105 ± 36 (50)	110 ± 26 (21)
NC=Not Calculable All numbers are Mean ± 1 Standard Deviation (# of respondants)							

TABLE 10
Self-Employed, Independant Consultants

Sex	**Years experience post-terminal degree**					
	0–1	**1–3**	**3–5**	**5–10**	**10–20**	**20 +**
M	0	0	1	1	3	11
F	0	0	0	0	0	0

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