|  |
| --- |
| Clustering Faculty in Psychology |

**proc** **fastclus** out=cluststand maxclusters=**4** maxiter=**100**;

 var ZSalary ZFTE ZRank ZArticles ZExperience; **run**;

**proc** **sort**; by cluster; **run**;

**proc** **print**; Var Name Cluster CLU4\_1 Rank Salary FTE Articles Experience Sex; **run**;

 The variables used in the cluster analysis were all standardized to mean 0, standard deviation 1.

The FASTCLUS Procedure

Replace=FULL Radius=0 Maxclusters=4 Maxiter=100 Converge=0.02

| **Initial Seeds** |
| --- |
| **Cluster** | **ZSalary** | **ZFTE** | **ZRank** | **ZArticles** | **ZExperience** |
| **1** | 2.689249349 | 0.522768167 | 1.399087336 | 0.577758297 | 1.816174473 |
| **2** | 1.738638032 | 0.522768167 | 1.399087336 | 3.771397124 | 1.384685937 |
| **3** | -1.186787914 | 0.522768167 | -1.336905677 | -0.763570010 | -0.945352155 |
| **4** | -1.334417766 | -1.317375782 | -1.336905677 | 0.194521638 | 1.816174473 |

|  |  |
| --- | --- |
| **Minimum Distance Between Initial Seeds =** | 3.359936 |

| **Iteration History** |
| --- |
| **Iteration** | **Criterion** | **Relative Change in Cluster Seeds** |
| **1**  | **2**  | **3**  | **4**  |
| **1** | 0.9476 | 0.5125 | 0.4479 | 0.4366 | 0.3299 |
| **2** | 0.6574 | 0.1476 | 0 | 0.0996 | 0.5895 |
| **3** | 0.4824 | 0 | 0 | 0.1453 | 0.1243 |
| **4** | 0.4530 | 0 | 0 | 0 | 0 |

|  |
| --- |
| Convergence criterion is satisfied. |

|  |  |
| --- | --- |
| **Criterion Based on Final Seeds =** | 0.4530 |

| **Cluster Summary** |
| --- |
| **Cluster** | **Frequency** | **RMS Std Deviation** | **Maximum Distancefrom Seedto Observation** | **RadiusExceeded** | **Nearest Cluster** | **Distance BetweenCluster Centroids** |
| **1** | 12 | 0.5531 | 2.1227 |   | 3 | 2.1956 |
| **2** | 4 | 0.4854 | 1.5049 |   | 1 | 2.3070 |
| **3** | 18 | 0.4078 | 1.7638 |   | 1 | 2.1956 |
| **4** | 10 | 0.4867 | 2.5465 |   | 3 | 3.0039 |

| **Statistics for Variables** |
| --- |
| **Variable** | **Total STD** | **Within STD** | **R-Square** | **RSQ/(1-RSQ)** |
| **ZSalary** | 1.00000 | 0.45883 | 0.804163 | **4.106296** |
| **ZFTE** | 1.00000 | 0.23002 | 0.950783 | **19.318182** |
| **ZRank** | 1.00000 | 0.38491 | 0.862183 | **6.255981** |
| **ZArticles** | 1.00000 | 0.54910 | 0.719525 | **2.565384** |
| **ZExperience** | 1.00000 | 0.64483 | 0.613209 | **1.585377** |
| **OVER-ALL** | 1.00000 | 0.47516 | 0.789973 | **3.761286** |

| **Cluster Means** |
| --- |
| **Cluster** | **ZSalary** | **ZFTE** | **ZRank** | **ZArticles** | **ZExperience** |
| **1** | 0.813564031 | 0.522768167 | 0.943088501 | 0.215812563 | 1.010729206 |
| **2** | 1.071268314 | 0.522768167 | 1.399087336 | 2.462005205 | 1.061069535 |
| **3** | 0.043799710 | 0.522768167 | -0.196908588 | -0.334203013 | -0.609749961 |
| **4** | -1.483623641 | -1.777411769 | -1.336905677 | -0.642211735 | -0.539752932 |

| **Cluster Standard Deviations** |
| --- |
| **Cluster** | **ZSalary** | **ZFTE** | **ZRank** | **ZArticles** | **ZExperience** |
| **1** | 0.7069192887 | 0.0000000000 | 0.4455147021 | 0.5162775062 | 0.7517257885 |
| **2** | 0.4558512866 | 0.0000000000 | 0.0000000000 | 0.9189692256 | 0.3549413958 |
| **3** | 0.3638444944 | 0.0000000000 | 0.4692189306 | 0.5820346883 | 0.3742819955 |
| **4** | 0.0745239051 | 0.4849205085 | 0.0000000000 | 0.3047653016 | 0.9223498507 |

 CLUSTER is that assigned by SAS. CLU4\_1 is that assigned by SPSS’ cluster analysis. Salary is annual, in dollar. Experience is years as an academic psychologist.

| **Obs** | **Name** | **CLUSTER** | **CLU4\_1** | **Rank** | **Salary** | **FTE** | **Articles** | **Experience** | **Sex** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | Chia, Rosina  | 1 | Senior Faculty | Professor | 123600 | 1.0 | 21 | 32 | Female |
| **2** | McCammon, Susan  | 1 | Senior Faculty | Professor | 83358 | 1.0 | 19 | 24 | Female |
| **3** | Evans, Rand  | 1 | Senior Faculty | Professor | 83236 | 1.0 | 17 | 38 | Male  |
| **4** | Brown, Michael  | 1 | Others  | Professor | 75041 | 1.0 | 18 | 11 | Male  |
| **5** | Durham, Thomas  | 1 | Senior Faculty | Associate | 72226 | 1.0 | 25 | 28 | Male  |
| **6** | Cope, John  | 1 | Senior Faculty | Professor | 66158 | 1.0 | 26 | 24 | Male  |
| **7** | Harju, Beverly  | 1 | Others  | Associate | 62477 | 1.0 | 13 | 16 | Female |
| **8** | Ironsmith, Marsha  | 1 | Senior Faculty | Associate | 62256 | 1.0 | 19 | 29 | Female |
| **9** | Eppler, Marion  | 1 | Others  | Associate | 61993 | 1.0 | 13 | 10 | Female |
| **10** | Allred, Linda  | 1 | Others  | Associate | 55073 | 1.0 | 11 | 15 | Female |
| **11** | Denney, Robert  | 1 | Others  | Assistant | 55061 | 1.0 | 0 | 27 | Male  |
| **12** | Childers, John  | 1 | Others  | Associate | 48160 | 1.0 | 2 | 18 | Male  |
| Cluster 1 contains Associate and Full Professors who have a good salary, much experience, but not many publications. |
| **13** | Bolen, Larry  | 2 | Chair  | Professor | 96800 | 1.0 | 71 | 27 | Male  |
| **14** | Wuensch, Karl  | 2 | Senior Faculty | Professor | 74957 | 1.0 | 50 | 26 | Male  |
| **15** | Webster, Ray  | 2 | Senior Faculty | Professor | 72056 | 1.0 | 41 | 18 | Male  |
| **16** | Hall, Cathy  | 2 | Senior Faculty | Professor | 68128 | 1.0 | 40 | 22 | Female |
| Cluster 2 is best characterized as those with high research productivity. All are full professors with relatively high salaries. |
| **17** | Everhart, Erik  | 3 | Others  | Assistant | 58828 | 1.0 | 28 | 5 | Male  |
| **18** | Riley-Tillman, Chris  | 3 | Others  | Assistant | 57500 | 1.0 | 21 | 7 | Male  |
| **19** | Davis, Ervin  | 3 | Others  | Assistant | 56000 | 1.0 | 5 | 0 | Male  |
| **20** | Dolbier, Christyn  | 3 | Others  | Assistant | 55551 | 1.0 | 8 | 4 | Female |
| **21** | Jordan, Caren  | 3 | Others  | Assistant | 55051 | 1.0 | 3 | 2 | Female |
| **22** | Walker, Alan  | 3 | Others  | Assistant | 54000 | 1.0 | 0 | 0 | Male  |
| **23** | Walcott, Christy  | 3 | Others  | Assistant | 53551 | 1.0 | 2 | 2 | Female |
| **24** | Reed, Jon  | 3 | Others  | Associate | 53262 | 1.0 | 14 | 7 | Male  |
| **25** | Tran, Tuan  | 3 | Others  | Assistant | 53000 | 1.0 | 10 | 0 | Male  |
| **26** | Aziz, Shahnaz  | 3 | Others  | Assistant | 52601 | 1.0 | 5 | 2 | Female |
| **27** | Elliott Wilson, Melanie  | 3 | Others  | Assistant | 52050 | 1.0 | 0 | 1 | Female |
| **28** | Golden, Jeannie  | 3 | Others  | Assistant | 49763 | 1.0 | 1 | 8 | Female |
| **29** | Handron, Clement  | 3 | Others  | Visiting  | 47500 | 1.0 | 0 | 5 | Male  |
| **30** | Dixon, Joe  | 3 | Others  | Visiting  | 44500 | 1.0 | 0 | 3 | Male  |
| **31** | Whitley, Theodore  | 3 | Others  | Visiting  | 42000 | 1.0 | 24 | 18 | Male  |
| **32** | Lyndon, Amy  | 3 | Others  | Visiting  | 41424 | 1.0 | 0 | 3 | Female |
| **33** | Vietor, Nate  | 3 | Others  | Visiting  | 41424 | 1.0 | 0 | 3 | Male  |
| **34** | Long, Debra  | 3 | Others  | Adjunct  | 14325 | 1.0 | 0 | 0 | Female |
| Cluster 3 consists of full time faculty who were assistant professors or on fixed-term contracts, with one exception. |
| **35** | Grossnickle, William  | 4 | Adjuncts  | Adjunct  | 10163 | 0.5 | 15 | 32 | Male  |
| **36** | Morris, Dee  | 4 | Adjuncts  | Adjunct  | 8131 | 0.5 | 0 | 0 | Female |
| **37** | McGowan, Debra  | 4 | Adjuncts  | Adjunct  | 6963 | 0.5 | 0 | 0 | Female |
| **38** | Taylor, Clyde Ray  | 4 | Adjuncts  | Adjunct  | 6813 | 0.5 | 0 | 0 | Male  |
| **39** | Shipley, Amy  | 4 | Adjuncts  | Adjunct  | 5999 | 0.5 | 0 | 0 | Female |
| **40** | Graham, Robert  | 4 | Adjuncts  | Adjunct  | 4920 | 0.3 | 4 | 15 | Male  |
| **41** | Stainback, Gary  | 4 | Adjuncts  | Adjunct  | 4739 | 0.3 | 0 | 0 | Male  |
| **42** | Deters, Steven  | 4 | Adjuncts  | Adjunct  | 4706 | 0.3 | 0 | 0 | Male  |
| **43** | Ernest, Brenda  | 4 | Adjuncts  | Adjunct  | 3602 | 0.3 | 0 | 0 | Female |
| **44** | Scott, Karen  | 4 | Adjuncts  | Adjunct  | 3529 | 0.3 | 0 | 0 | Female |
| Cluster 4 are all part-time faculty. |

 All of the data used here were collected from public resources. Faculty salary and related information are public information in North Carolina. The data are from year 2005.

[Getting Started with Fastclust](http://support.sas.com/documentation/cdl/en/statug/68162/HTML/default/viewer.htm#statug_fastclus_gettingstarted.htm)

[Karl L. Wuensch](http://core.ecu.edu/psyc/WuenschK/KLW.htm), December, 2015