Determination of Optimal Weights for Different Components of a given Selection Procedure

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Abstract

Usually, the process of selection of personnel consists of various components and the scores obtained by each individual on these components are weighted to arrive at a composite score. Very often, these weights are determined subjectively. The individuals are ranked on the basis of this composite score and the ranked list is used to select individuals for jobs, tasks etc.. In this study, the selection process for admission of candidates for an academic institution is studied. Discriminant analysis methods are used to arrive at appropriate optimal weights to be assigned to different components of the selection process.

1. INTRODUCTION

In business, industry, government and educational institutions, the managements are often faced with the problem of personnel selection. In the selection of personnel, persons who meet the required criteria are selected and tasks are assigned accordingly. The basis for selection is determined by the likelihood of reaching a required standard of performance in the designated tasks. The task may be purely manual or intellectual or a combination of both. In the past, in most of the personnel selection situations, the selection was based upon prescribed academic qualifications and subjective processes like the personal interview. In recent times, enlightened managements have introduced various criteria for

selection of job applicants. Scores are assigned on an interval scale to each one of the criteria and a weighted index is usually calculated, which forms the basis for ranking the applicants. Most often, the weightages given to various components of the criteria are developed over a period of time based on past experience. There is certainly a need to develop a methodology to scientifically determine these weights so as to ensure that the best applicants are selected for the task.

In this study, the selection process for admission of candidates to an academic institution where the authors were involved was studied. Statistical analysis, including discriminant analysis was done to arrive at appropriate optimal weights to be assigned to different components of the existing selection process.

2.   BACKGROUND

The admission procedure to an academic institution which offers a post graduate study in management was studied. The duration of the programme is about two years. The institution had specified the minimum eligibility requirement for admission of candidates to the programme. Every year , the institution selected about 100 candidates and these became the full-time students of the programme. The programme consisted of 27 core courses which all students had to take and 9 elective courses based on their area of interest. The performance of a student in each course was graded on a 7-point scale. The overall performance of a student in the programme was assessed and those who met the stipulated minimum

requirement were declared as successfully completing the programme. After completion of the programme, the students usually got jobs as middle level managers in different organisations.

3. ADMISSION PROCEDURE

Every year, the institution received a large number of applications from candidates who sought admission to the programme. The applications were screened and only those who met the minimum eligibility requirement were considered. The Institute had an admission procedure which consisted of three components:

1. Background of the candidate
2. Written test and
3. Personal interview

A score for the background of a candidate was given on the basis of his past academic performance in high school, college and any other professional institution attended, his extra curricular activities, and professional experience. The maximum possible score was specified and the candidate was given a score out of this maximum. All candidates had to take a written test which consisted of a number of sections. Each section was so designed as to measure certain capabilities of candidates, like English comprehension, quantitative ability, fact-finding, and logic. The sections consisted of only objective-type questions and the score obtained in each section was recorded. The maximum possible score in each section was limited by the number of questions in that section. There was a time limit for answering each section and the number of

questions in each section was so large that very rarely a candidate was able to answer all questions in the stipulated time limit. The Institute followed different weighting procedures in different years to arrive at a overall score of a candidate in the written test.

A weighted score of the background score and written test score was obtained and this weighted score was used as a performance measure for ranking the candidates. Depending on the intake of students in a year, a limited number of candidates were called for personal interviews from the top of the ranked list.

The personal interview had various components, like attitude of the candidate, his suitability for the programme,and his motivation for study. Scores were given to the candidates in the personal interview out of a maximum stipulated score.

A weighted score of the background of the student, written test score and personal interview score was calculated and the candidates were ranked as per this weighted score. This list of rankings was used to offer admission to the candidates.

4. METHODOLOGY

The objective of any admission procedure for an academic institution is to select the 'best' students from among those who applied, and who will benefit most from the programme of study. Usually, the term 'best' is understood in the context of a

student's performance in his studies. The Institute studied
offered post-graduate programme in management and trained students
so that they became effective managers in the future. The
Institute expected its students to perform well on their jobs after
graduating from the programme. An ideal admission
procedure will be one which can identify potential candidates who
can get maximum benefit from the programme and do well in their
jobs. It is desirable if the performance variables which affect a
student's performance on the job can be identified and performance
criteria evolved so that the effects of various components of the
admission procedure on the performance criteria can be studied.
Unfortunately, to date there is no reliable performance criteria
which can be used. However, from experience, the management schools
both in India and abroad, have evolved a curriculum and an
evaluation system and look for good performance of the students in
the curriculum. Also, from the information available on the
placement of the students, it appears that organisations attach
significant importance to the student's performance in the
curriculum. It is implicitly assumed that a student's performance
on the job after completing the programme is positively correlated
with his performance in the academic courses. Hence it is
reasonable to assume a student's performance in the academic
courses as a measure of his performance on the job.
The curriculum consisted of 27 core courses and 9 elective courses.
A letter grading system was followed for all the courses,the letter
grades being A+,A,B+,B,C,D and F. A+ was the highest grade and F

stood for failure. A student's Overall Performance Index (OPI) was calculated by giving the following equivalent numerical values to the letter grades:

$$A+ = 6 \qquad C = 2$$
$$A\ = 5 \qquad D = 1$$
$$B+ = 4 \qquad F = 0$$
$$B\ = 3$$

The OPI of a student may be considered as a weak measure of his performance; however, it can be used to categorise a student as either a high performer or low performer. For the purpose of statistical analysis, the students were classified into - high performance and low performance groups - on the basis of their OPI. Different categorisations based on the student's OPIs in core courses, elective courses and all courses were considered. As all the students had to take the core courses, the categorisation of students on the basis of their OPI in core courses appeared to be more realistic than the others. Discriminant analysis methods were used to arrive at a weighted composite of the background score, interview score and sectionwise score of the written admission test. This was used to distinguish between students belonging to the high performance category and low performance category. As the composition of sections as well as the number of sections in the written admission test changed over the three years studied, the discriminant analysis was carried out for each year separately.

5. DATA COLLECTION AND ANALYSIS

The data on the three batches of students who were admitted to the programme in 1983, 1984 and 1985 were considered. The number of students admitted in 1983, 1984 and 1985 were 100,96 and 80 respectively. From the admission records of the Institution, data was collected for each student on his background score, score for each section of the written test and personal interview score.

In 1983, there were six sections in the written test whereas in 1984 and 1985 there were four sections. As the abilities that different sections of the written test try to measure are confidential, it was not possible to compare sections over different years. Data was also collected on the OPI of a student for the core courses, elective courses and all courses. The OPI was calculated taking the numerical equivalents for the grades in the courses.

The data was analysed separately for each batch of students. For the purpose of analysis, the students were classified into high performance and low performance groups on the basis of their OPI. Two different levels of cut-offs were tried - 3.5 and 4.0 for OPI of core courses, 4.0 and 4.3 for OPI of elective courses and 3.8 and 4.0 for OPI of all the courses. These cut-off levels were arrived at on the basis of the frequency distributions of OPIs and in order to ensure a sizable number of students in each group.

The discriminant analysis module of SPSS software package was used. Wilks' method of step-wise analysis based on minimising the overall Wilks' lambda was used to arrive at the discriminant functions.

6. RESULTS

6.1. On the basis of the frequency distributions of the student's OPI's for the core courses, elective courses and all the courses, the cut-off levels for OPI were selected for classifying the students into groups (Table 1).

Table 1: Cut- Off Levels for OPI

Courses	Cut- off levels
Core courses	3.5 and 4.5
Elective courses	4.0 and 4.3
All courses	3.8 and 4.0

Students who obtained an OPI equal to or higher than a specified cut-off level were considered as belonging to the high performance group (Group 1). Those students who obtained an OPI lower than the cut-off level were considered as belonging to the low performance group (Group 2). The categorisation is done separately based on core courses, elective courses and all courses for each cut-off level and for each year.

6.2. Tables 2, 3 and 4 give the number of students in each group, year-wise, for the different cut-off levels considered.

Table 2: Classification based on Core Courses

	Cut-off level: 3.5				Cut-off level: 4.0		
Year	1983	1984	1985		1983	1984	1985
Group 1	74	78	66		41	54	45
Group 2	26	18	14		59	42	35
Total	100	96	80		100	96	80

Table 3: Classification based on Elective Courses

	Cut-off level: 4.0				Cut off-level: 4.3		
Year	1983	1984	1985		1983	1984	1985
Group 1	76	73	54		49	49	38
Group 2	24	23	26		51	47	42
Total	100	96	80		100	96	80

Table 4: Classification based on All Courses

	Cut-off level: 3.8				Cut-off level: 4.0		
Year	1983	1984	1985		1983	1984	1985
Group 1	67	66	55		49	57	49
Group 2	33	30	25		51	39	31
Total	100	96	80		100	96	80

6.3 The predictor variables considered are:

BGSCR   :   Background score

INTSCR   :   Score in personal interview

SCRSECJ   :   Score in section J of the written test

J=1,2,3,4,5,6.

In 1983, there were six sections in the written test whereas in 1984 and 1985, there were four sections.

The group means and standard deviations for each of the predictor variables are given in Appendix 1.

The group means were tested for significant differences using U-statistic.

Table 5 below gives the list of variables for which there is a significant difference (at 5% level) between the high performance group and the low performance group of students. It may be noted that for elective courses in all the years and for the two cut-off levels, there is no significant difference between group means.

Table 5: Variables for which there are significant differences between group means

Courses	Cut-off level	Years		
		1983-85	1984-86	1985-87
Core	3.5	BGSCR	BGSCR	BGSCR
		SCRSEC1	INTSCR	INTSCR
		SCRSEC2	SCRSEC1	SCRSEC1
		SCRSEC3	SCRSEC2	SCRSEC2
		SCRSEC4	SCRSEC3	SCRSEC3
		SCRSEC6	SCRSEC4	SCRSEC4
	4.0	BGSCR	SCRSEC1	INTSCR
		SCRSEC2	SCRSEC2	SCRSEC2
		SCRSEC3	SCRSEC3	SCRSEC3
		SCRSEC4		SCRSEC4
All	3.8	BGSCR	INTSCR	BGSCR
		SCRSEC1	SCRSEC1	INTSCR
		SCRSEC2	SCRSEC2	SCRSEC1
		SCRSEC3	SCRSEC3	SCRSEC2
		SCRSEC4		

Courses	Cut-off level	Years		
		1983-85	1984-86	1985-87
		SCRSEC6		
	4.0	BGSCR	INTSCR	BGSCR
		SCRSEC2	SCRSEC1	INTSCR
		SCRSEC3	SCRSEC2	SCRSEC2
		SCRSEC4	SCRSEC3	SCRSEC4

It can be seen that there are significant differences between group means if the classification is done on the basis of core courses or all courses.

6.4. The pooled within group correlation matrices are given in Appendix 2. The sections have significant correlations between them. This indicates that some of the sections of the written test may possibly be combined or dropped. The background score does not have a significant correlation with the other components of the admission procedure.

6.5. The unstandardised and standardised discriminant function coefficients for each year for different cut-off levels of OPI are given in the Tables 6(a) to 8(c) below.

Table 6(a): Discriminant function coefficients based on the OPI of core courses 1983-85 group of students

Cut-off level	Variable	Unstandardised	Standardised
3.5	BGSCR	0.2054	0.5566
	SCRSEC1	0.0638	0.4532
	SCRSEC2	0.0767	0.4422
	SCRSEC6	0.1662	0.3652
	(Constant)	- 7.3864	-------
4.0	BGSCR	0.1698	0.4711
	INTSCR	0.1862	0.5128
	SCRSEC2	0.0730	0.4311
	SCRSEC4	0.1162	0.4281
	(Constant)	- 8.1916	------

Table 6(b): Discriminant function coefficients

based on the OPI of elective courses

1983-85 group of students

Cut-off level	Variable	Unstandardised	Standardised
4.0	BGSCR	- 0.2643	- 0.7451
	SCRSEC4	0.2037	0.7676
	(Constant)	0.1821	-----
4.3	BGSCR	0.1761	0.4950
	INTSCR	0.2622	0.7300
	SCRSEC1	- 0.1321	- 0.9788
	(Constant)	- 3.0936	------

Table 6(c): Discriminant function coefficients

based on the OPI of all courses

1983-85 group of students

Cut-off level	Variable	Unstandardised	Standardised
3.8	BGSCR	0.1687	0.4680
	SCRSEC1	0.0463	0.3377
	SCRSEC2	0.0570	0.3351
	SCRSEC5	0.2258	0.2957
	SCRSEC6	0.2098	0.4640
	(Constant)	- 7.6636	-----
4.0	BGSCR	0.1954	0.5381
	INTSCR	0.1411	0.3918
	SCRSEC4	0.2100	0.7638
	(Constant)	- 7.1392	-----

Table 7(a): Discriminant function coefficients based on the OPI of core courses 1984-86 group of students

Cut-off level	Variable	Unstandardised	Standardised
3.5	BGSCR	0.0714	0.2405
	INTSCR	0.2178	0.5101
	SCRSEC1	0.0260	0.3966
	SCRSEC2	0.0820	0.6825
	SCRSEC4	− 0.0553	− 0.2578
	(Constant)	− 7.8295	-----
4.0	BGSCR	0.1058	0.3592
	SCRSEC1	0.0422	0.6813
	SCRSEC2	0.0747	0.6598
	SCRSEC4	− 0.1018	− 0.4870
	(Constant)	− 4.5809	-----

Table 7(b): Discriminant function coefficients based on the OPI of elective courses 1984-86 group of students

Cut-off level	Variable	Unstandardised	Standardised
4.0	BGSCR	0.1361	0.4676
	INTSCR	- 0.3311	- 0.8362
	SCRSEC2	- 0.0964	- 0.8911
	SCRSEC3	0.0534	0.4420
	SCRSEC4	0.1711	0.8200
	(Constant)	2.7452	-----
4.3	INTSCR	0.2611	0.6642
	SCRSEC2	0.0989	0.9049
	SCRSEC3	- 0.0880	- 0.7281
	(Constant)	- 4.5522	-----

Table 7(c): Discriminant function coefficients based on the OPI of all courses 1984-86 group of students

Cut-off level	Variable	Unstandardised	Standardised
3.8	BGSCR	0.0686	0.2331
	INTSCR	0.1392	0.3443
	SCRSEC1	0.0199	0.3185
	SCRSEC2	0.1054	0.8878
	SCRSEC4	− 0.0859	− 0.4064
	(Constant)	− 6.5541	-----
4.0	BGSCR	0.1185	0.4012
	SCRSEC1	0.0411	0.6640
	SCRSEC2	0.0713	0.6290
	SCRSEC4	− 0.0863	− 0.4121
	(Constant)	− 4.7690	-----

Table 8(a): Discriminant function coefficients
based on the OPI of core courses
1985-87 group of students

Cut-off level	Variable	Unstandardised	Standardised
3.5	BGSCR	0.1529	0.4771
	INTSCR	0.1484	0.3472
	SCRSEC2	0.0616	0.3798
	SCRSEC3	0.0535	0.4045
	SCRSEC4	0.0915	0.4071
	(Constant)	- 9.2413	-----
4.0	BGSCR	0.1186	0.3846
	INTSCR	0.2361	0.5682
	SCRSEC2	0.1224	0.7488
	(Constant)	- 8.0772	-----

Table 8(b): Discriminant function coefficients

based on the OPI of elective courses

1985-87 group of students

Cut-off level	Variable	Unstandardised	Standardised
4.0	BGSCR	0.2131	0.6991
	SCRSEC2	0.0916	0.6125
	SCRSEC4	- 0.1611	- 0.8141
	(Constant)	- 1.8672	-----
4.3	BGSCR	0.1988	0.6492
	SCRSEC2	0.1129	0.7469
	SCRSEC3	- 0.0685	- 0.5982
	(Constant)	- 2.6355	-----

Table 8(c): Discriminant function coefficients

based on the OPI of all courses

1985-87 group of students

Cut-off level	Variable	Unstandardised	Standardised
3.8	BGSCR	0.1948	0.6202
	INTSCR	0.2188	0.5370
	SCRSEC2	0.0898	0.5781
	(Constant)	- 7.9312	-----
4.0	BGSCR	0.1597	0.5136
	INTSCR	0.2069	0.5076
	SCRSEC2	0.1100	0.6938
	(Constant)	- 7.8128	-----

It may be noted that some of the components of the admission procedure do not appear to have a discriminating ability in identifying high performance students.

6.6. In the admission procedure, the optimal weights to be assigned to different components are given by the coefficients of the discriminating function, so that students with potential for high performance can be identified. The percentage of students who are correctly classified as belonging to the high performance group and

low performance group by using the discriminant functions are give in table 9 below.

Table 9: Percentage of students correctly classified using the discriminant function

Classification based on	Groups		Years		
	Group 1	Group 2	1983	1984	1985
Core courses	OPI>=3.5	OPI<3.5	80.0	90.6	91.2
	OPI>=4.0	OPI<4.0	66.0	65.6	73.8
Electives	OPI>=4.0	OPI<4.0	63.0	63.5	55.0
	OPI>=4.3	OPI<4.3	61.0	58.3	63.8
All courses	OPI>=3.8	OPI<3.8	68.0	77.1	72.5
	OPI>=4.0	OPI<4.0	66.0	65.6	71.2

The classification results, groupwise, are given in Appendix 3.

6.7. The Institution has to decide on the type of students it wants to select for the programme. If it is looking for students who perform well in the core courses, then the discriminant function and the weights given by the discriminating function coefficients can be used to identify the students. A study of Table 9 shows that this function has a high discriminating ability. If the Institution is looking for students who are likely to perform well in all the courses, both core and elective, then the corresponding

discriminating function has a moderate ability to identify students belonging to the high performance category.

7. CONCLUSION

Discriminant analysis is a scientific tool which can be used in most of the situations that arise in personnel selection. This study has illustrated the use of discriminant functions in the selection of students for a academic programme. The optimal weights assigned to the different components of the admission procedure were scientifically determined in keeping with the objective of the programme. The classification results indicate a high degree of reliability in identifying high performance groups. This analysis also helps in evaluating and improving any selection procedure.

REFERENCES

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GROUP MEANS AND STANDARD DEVIATIONS

1983 - 85 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES > = 3.5

GROUP 2 : OPI IN CORE COURSES < 3.5

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	11.29730	16.25216	24.48986	26.23649
2	9.34615	15.82269	18.72115	21.77885
Total	10.79000	16.14050	22.99000	25.07750

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	19.22973	13.80068	4.97973	11.18243
2	15.88462	11.13462	4.62500	9.35577
Total	18.36000	13.10750	4.88750	10.70750

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	2.72346	2.08744	5.48573	4.35770
2	2.66747	4.23247	10.47338	8.65515
Total	2.82948	2.78793	7.50714	6.06475

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	3.79341	3.16254	1.24469	2.06001
2	6.19081	4.69693	1.52028	2.55751
Total	4.73960	3.78515	1.32305	2.33010

GROUP MEANS AND STANDARD DEVIATIONS

1983 - 85 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES > = 4.0

GROUP 2 : OPI IN CORE COURSES < 4.0

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	11.53659	16.75024	24.26829	26.87805
2	10.27119	15.71678	22.10169	23.82627
Total	10.79000	16.14050	22.99000	25.07750

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	19.55488	14.23171	5.07317	11.04878
2	17.52966	12.32627	4.75847	10.47034
Total	18.36000	13.10750	4.88750	10.70750

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	2.83811	2.29007	5.56675	4.06399
2	2.72808	3.03392	8.53620	6.89253
Total	2.82948	2.78793	7.50714	6.06475

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	3.88568	3.04774	1.24905	2.31990
2	5.12055	4.06633	1.36770	2.32726
Total	4.73960	3.78515	1.32305	2.33010

GROUP MEANS AND STANDARD DEVIATIONS

1983 - 85 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES > = 4.0

GROUP 2 : OPI IN ELECTIVE COURSES < 4.0

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	11.00000	16.09829	23.04276	24.78947
2	10.12500	16.27417	22.82292	25.98958
Total	10.79000	16.14050	22.99000	25.07750

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	18.31250	12.81579	4.84211	10.67434
2	18.51042	14.03125	5.03125	10.81250
Total	18.36000	13.10750	4.88750	10.70750

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	2.82371	2.86935	7.81242	6.30543
2	2.80237	2.56594	6.59689	5.24688
Total	2.82948	2.78793	7.50714	6.06475

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	4.84547	3.75197·	1.39035	2.44200
2	4.48335	3.82022	1.09672	1.97711
Total	4.73960	3.78515	1.32305	2.33010

GROUP MEANS AND STANDARD DEVIATIONS

1983 - 85 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES > = 4.3

GROUP 2 : OPI IN ELECTIVE COURSES < 4.3

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	11.22449	16.45469	21.54082	24.62245
2	10.37255	15.83863	24.38235	25.51471
Total	10.79000	16.14050	22.99000	25.07750

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	17.83673	12.75510	4.97449	10.48980
2	18.86275	13.44608	4.80392	10.91667
Total	18.36000	13.10750	4.88750	10.70750

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	2.69463	2.89902	7.88282	6.77832
2	2.91864	2.67056	6.92087	5.32175
Total	2.82948	2.76793	7.50714	6.06475

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	5.33575	3.69702	1.36668	2.49894
2	4.07686	3.87405	1.28774	2.15967
Total	4.73960	3.78515	1.32305	2.33010

GROUP MEANS AND STANDARD DEVIATIONS

1983 - 85 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES > = 3.8

GROUP 2 : OPI IN ALL COURSES < 3.8

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	11.22388	16.41955	24.33582	26.19030
2	9.90909	15.57394	20.25758	22.81818
Total	10.79000	16.14050	22.99000	25.07750

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	19.12313	13.83582	5.04851	11.24254
2	16.81061	11.62879	4.56061	9.62121
Total	18.36000	13.10750	4.88750	10.70750

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	2.72931	2.13350	5.66096	4.59312
2	2.86535	3.76354	9.83705	7.90082
Total	2.82948	2.78793	7.50714	6.06475

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	3.82856	3.04653	1.22493	2.07345
2	5.96410	4.67085	1.46846	2.47260
Total	4.73960	3.78515	1.32305	2.33010

GROUP MEANS AND STANDARD DEVIATIONS

1983 - 85 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES > = 4.0

GROUP 2 : OPI IN ALL COURSES < 4.0

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	11.51020	16.52633	24.34694	26.33673
2	10.09804	15.76980	21.68627	23.86765
Total	10.79000	16.14050	22.99000	25.07750

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	19.38776	14.23469	5.03571	11.14286
2	17.37255	12.02451	4.74510	10.28922
Total	18.36000	13.10750	4.88750	10.70750

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	2.60706	2.02678	5.43710	4.33480
2	2.88621	3.34068	8.92578	7.19311
Total	2.82948	2.78793	7.50714	6.06475

OPIGRP	SCRSEC3	SCRSEC4	SCRSEC5	SCRSEC6
1	3.95386	2.70243	1.19678	2.16867
2	5.23841	4.34921	1.43134	2.42300
Total	4.73960	3.78515	1.32305	2.33010

GROUP MEANS AND STANDARD DEVIATIONS

1984 - 86 GROUP OF STUDENTS

GROUP CLASSTFICATION : GROUP 1 : OPI IN CORE COURSES > = 3.5

GROUP 2 : OPI IN CORE COURSES < 3.5

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	10.33333	16.55077	61.09936	38.82372
2	8.55556	13.87778	40.33333	28.30556
Total	10.00000	16.04958	57.20573	36.85156

OPIGRP	SCRSEC3	SCRSEC4
1	38.76282	16.72115
2	31.20833	13.69444
Total	37.34635	16.15365

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	3.34068	2.16541	12.38088	7.38297
2	3.50163	3.01478	24.27326	11.64883
Total	3.42437	2.55478	17.20649	9.24631

OPIGRP	SCRSEC3	SCRSEC‘
1	6.40881	4.01175
2	12.00069	6.88752
Total	8.23698	4.78998

GROUP MEANS AND STANDARD DEVIATIONS

1984 – 86 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES > = 4.0

GROUP 2 : OPI IN CORE COURSES < 4.0

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	10.50000	16.49000	62.60648	39.38889
2	9.35714	15.48333	50.26190	33.58929
Total	10.00000	16.04958	57.20573	36.85156

OPIGRP	SCRSEC3	SCRSEC4
1	39.00463	16.62037
2	35.21429	15.55357
Total	37.34635	16.15365

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	3.23162	1.99669	9.98378	6.55486
2	3.59418	3.06363	21.66429	11.09834
Total	3.42437	2.55478	17.20649	9.24631

OPIGRP	SCRSEC3	SCRSEC4
1	5.74631	3.50261
2	10.30755	6.05376
Total	8.23698	4.78998

GROUP MEANS AND STANDARD DEVIATIONS

1984 - 86 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES > = 4.0

GROUP 2 : OPI IN ELECTIVE COURSES < 4.0

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	9.89041	16.30904	57.44178	37.36986
2	10.34783	15.22609	56.45652	35.20652
Total	10.00000	16.04958	57.20573	36.85156

OPIGRP	SCRSEC3	SCRSEC4
1	37.10959	15.90068
2	38.09783	16.95652
Total	37.34635	16.15365

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	3.50223	2.39450	16.67310	9.51434
2	3.21373	2.91333	19.18046	8.31881
Total	3.42437	2.55478	17.20649	9.24631

OPIGRP	SCRSEC3	SCRSEC4
1	7.82701	4.69647
2	9.57647	5.09938
Total	8.23698	4.78998

GROUP MEANS AND STANDARD DEVIATIONS

1984 - 86 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES > = 4.3

GROUP 2 : OPI IN ELECTIVE COURSES < 4.3

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	10.18367	16.39510	58.82653	38.45918
2	9.80851	15.68936	55.51596	35.17553
Total	10.00000	16.04958	57.20573	36.85156

OPIGRP	SCRSEC3	SCRSEC4
1	37.14286	16.26531
2	37.55851	16.03723
Total	37.34635	16.15365

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	3.69500	2.21728	16.73182	9.13902
2	3.14600	2.84423	17.70857	9.15357
Total	3.42437	2.55478	17.20649	9.24631

OPIGRP	SCRSEC3	SCRSEC4
1	7.64001	4.20113
2	8.89510	5.37961
Total	8.23698	4.78998

GROUP MEANS AND STANDARD DEVIATIONS

1984 - 86 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES > = 3.8

GROUP 2 : OPI IN ALL COURSES < 3.8

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	10.36364	16.51303	61.56061	39.47348
2	9.20000	15.03000	47.62500	31.08333
Total	10.00000	16.04958	57.20573	36.85156

OPIGRP	SCRSEC3	SCRSEC4
1	38.79167	16.75000
2	34.16667	14.84167
Total	37.34635	16.15365

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	3.44913	2.26543	11.07666	6.98117
2	3.28424	2.88338	23.59544	10.98928
Total	3.42437	2.55478	17.20649	9.24631

OPIGRP	SCRSEC3	SCRSEC4
1	6.06417	3.97831
2	11.16343	6.09072
Total	8.23698	4.78998

GROUP   MEANS   AND   STANDARD   DEVIATIONS

1984 - 86   GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES > = 4.0

GROUP 2 : OPI IN ALL COURSES < 4.0

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	10.50877	16.54667	62.27193	39.23684
2	9.25641	15.32308	49.80128	33.36538
Total	10.00000	16.04958	57.20573	36.85156

OPIGRP	SCRSEC3	SCRSEC4
1	39.15789	16.65351
2	34.69872	15.42308
Total	37.34635	16.15365

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	3.45958	1.96387	9.76639	6.88205
2	3.27445	3.11790	22.46834	11.08740
Total	3.42437	2.55478	17.20649	9.24631

OPIGRP	SCRSEC3	SCRSEC4
1	5.63741	3.54239
2	10.51990	6.15992
Total	8.23698	4.78998

GROUP MEANS AND STANDARD DEVIATIONS

1985 - 87 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES > = 3.5

GROUP 2 : OPI IN CORE COURSES < 3.5

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	12.50000	16.05455	45.23864	25.46212
2	9.64286	13.48571	29.89286	18.58929
Total	12.00000	15.60500	42.55313	24.25938

OPIGRP	SCRSEC3	SCRSEC4
1	38.35227	19.18561
2	26.87500	12.82143
Total	36.34375	18.07188

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	3.11942	2.24405	9.29965	6.13224
2	3.12821	2.76624	23.94078	6.31589
Total	3.28788	2.52335	14.13876	6.66412

OPIGRP	SCRSEC3	SCRSEC4
1	6.13925	3.91037
2	12.45405	6.51140
Total	8.70594	5.04775

GROUP MEANS AND STANDARD DEVIATIONS

1985 - 87 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES > = 4.0

GROUP 2 : OPI IN CORE COURSES < 4.0

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	12.57778	16.31111	44.75556	26.65000
2	11.25714	14.69714	39.72143	21.18571
Total	12.00000	15.60500	42.55313	24.25938

OPIGRP	SCRSEC3	SCRSEC4
1	38.06111	19.24444
2	34.13571	16.56429
Total	36.34375	18.07188

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	2.53600	2.09569	7.81816	5.55919
2	3.97302	2.75729	19.25380	6.77537
Total	3.28788	2.52335	14.13876	6.66412

OPIGRP	SCRSEC3	SCRSEC4
1	5.85797	3.76304
2	11.08048	6.05955
Total	8.70594	5.04775

GROUP MEANS AND STANDARD DEVIATIONS

1985 - 87 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES > = 4.0

GROUP 2 : OPI IN ELECTIVE COURSES < 4.0

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	12.29630	15.63148	42.63426	24.58796
2	11.38462	15.55000	42.38462	23.57692
Total	12.00000	15.60500	42.55313	24.25938

OPIGRP	SCRSEC3	SCRSEC4
1	35.99074	17.71759
2	37.07692	18.80769
Total	36.34375	18.07188

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	2.76521	2.41034	13.24681	6.73280
2	4.16727	2.79274	16.11338	6.59688
Total	3.28788	2.52335	14.13876	6.66412

OPIGRP	SCRSEC3	SCRSEC4
1	7.93948	4.90043
2	10.24909	5.36391
Total	8.70594	5.04775

GROUP   MEANS   AND   STANDARD   DEVIATIONS

1985 - 87   GROUP   OF   STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES > = 4.3

GROUP 2 : OPI IN ELECTIVE COURSES < 4.3

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	12.55263	15.72632	41.74342	25.41447
2	11.50000	15.49524	43.28571	23.21429
Total	12.00000	15.60500	42.55313	24.25938

OPIGRP	SCRSEC3	SCRSEC4
1	35.59868	18.32895
2	37.01786	17.83929
Total	36.34375	18.07188

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	2.84460	2.19467	11.79892	5.95061
2	3.60386	2.81000	16.07458	7.15967
Total	3.28788	2.52335	14.13876	6.66412

OPIGRP	SCRSEC3	SCRSEC4
1	7.92523	5.14161
2	9.40102	5.01213
Total	8.70594	5.04775

GROUP MEANS AND STANDARD DEVIATIONS

1985 - 87 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES > = 3.8

GROUP 2 : OPI IN ALL COURSES < 3.8

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	12.60000	16.04000	44.92273	25.51364
2	10.68000	14.64800	37.34000	21.50000
Total	12.00000	15.60500	42.55313	24.25938

OPIGRP	SCRSEC3	SCRSEC4
1	37.45455	18.76818
2	33.90000	16.54000
Total	36.34375	18.07188

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	2.71211	2.15266	9.29853	6.09729
2	4.04887	3.02409	20.54997	7.14143
Total	3.28788	2.52335	14.13876	6.66412

OPIGRP	SCRSEC3	SCRSEC4
1	6.07231	3.77794
2	12.54886	6.94273
Total	8.70594	5.04775

GROUP MEANS AND STANDARD DEVIATIONS

1985 - 87 GROUP OF STUDENTS

GROUP CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES > = 4.0

GROUP : OPI IN ALL COURSES < 4.0

Group means

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	12.61224	16.12041	43.91837	26.04592
2	11.03226	14.79032	40.39516	21.43548
Total	12.00000	15.60500	42.55313	24.25938

OPIGRP	SCRSEC3	SCRSEC4
1	37.27041	19.09694
2	34.87903	16.45161
Total	36.34375	18.07188

Group Standard Deviations

OPIGRP	BGSCR	INTSCR	SCRSEC1	SCRSEC2
1	2.62056	2.18117	8.90830	5.74426
2	3.98735	2.83471	19.78855	7.12038
Total	3.28788	2.52335	14.13876	6.66412

OPIGRP	SCRSEC3	SCRSEC4
1	6.00409	3.67700
2	11.75972	6.40586
Total	8.70594	5.04775

POOLED   WITHIN   GROUP   CORRELATIONS

1983 - 85   GROUP OF STUIDENTS

A)GROUP   CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 3.5

GROUP 2 : OPI IN CORE COURSES < 3.5

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4	SCRSEC5
BGSCR	1.00000						
INTSCR	.12024	1.00000					
SCRSEC1	.00967	.44950	1.00000				
SCRSEC2	-.06953	-.08175	.05686	1.00000			
SCRSEC3	.04741	.39324	.66467	.14913	1.00000		
SCRSEC4	.01242	-.14543	.03088	.54095	.10127	1.00000	
SCRSEC5	-.06825	.01437	.02002	.10504	.02075	.08016	1.00000
SCRSEC6	-.05778	.04845	.24855	.32114	.16816	.38198	.13293

	SCRSEC6
SCRSEC6	1.00000

B)GROUP   CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 4.0

GROUP 2 : OPI IN CORE COURSES < 4.0

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4	SCRSEC5
BGSCR	1.00000						
INTSCR	.09848	1.00000					
SCRSEC1	.08399	.43043	1.00000				
SCRSEC2	-.02028	-.10579	.13028	1.00000			
SCRSEC3	.09527	.36975	.69213	.19263	1.00000		
SCRSEC4	.05360	-.17060	.10151	.55984	.14317	1.00000	
SCRSEC5	-.05640	.00073	.04270	.11200	.03248	.08641	1.00000
SCRSEC6	.02715	.04750	.32477	.38133	.23873	.43434	.15249

	SCRSEC6
SCRSEC6	1.00000

POOLED   WITHIN   GROUP   CORRELATIONS

1983 - 85   GROUP OF STUIDENTS

A)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES >= 4.0

GROUP 2 : OPI IN ELECTIVE COURSES < 4.0

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4	SCRSEC5
BGSCR	1.00000						
INTSCR	.13981	1.00000					
SCRSEC1	.11097	.44549	1.00000				
SCRSEC2	.04770	-.05768	.16205	1.00000			
SCRSEC3	.14116	.39371	.70012	.23426	1.00000		
SCRSEC4	.12625	-.12178	.13585	.58303	.18744	1.00000	
SCRSEC5	-.02071	.02064	.05963	.13249	.05537	.10511	1.00000
SCRSEC6	.05731	.06819	.33698	.39648	.25717	.44896	.16352

	SCRSEC6
SCRSEC6	1.00000

B)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES >= 4.3

GROUP 2 : OPI IN ELECTIVE COURSES < 4.3

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4	SCRSEC5
BGSCR	1.00000						
INTSCR	.12025	1.00000					
SCRSEC1	.14469	.47769	1.00000				
SCRSEC2	.04769	-.04737	.149 3	1.00000			
SCRSEC3	.15668	.41103	.69580	.22884	1.00000		
SCRSEC4	.12142	-.10777	.11801	.58436	.17994	1.00000	
SCRSEC5	-.03896	.01519	.07253	.14245	.06392	.11906	1.00000
SCRSEC6	.06840	.07988	.32633	.39301	.25003	.44334	.17177

	SCRSEC6
SCRSEC6	1.00000

POOLED   WITHIN   GROUP   CORRELATIONS

1983 - 85   GROUP OF STUIDENTS

A)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES >= 3.8

GROUP 2 : OPI IN ALL COURSES < 3.8

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4	SCRSEC5
BGSCR	1.00000						
INTSCR	.10714	1.00000					
SCRSEC1	.05862	.42672	1.00000				
SCRSEC2	-.02323	-.09720	.09964	1.00000			
SCRSEC3	.09151	.37480	.68110	.18566	1.00000		
SCRSEC4	.04812	-.16433	.06680	.55490	.13316	1.00000	
SCRSEC5	-.06964	-.00279	.01471	.09597	.01688	.06798	1.00000
SCRSEC6	-.02041	.02321	.27620	.34095	.19770	.39372	.11550

	SCRSEC6
SCRSEC6	1.00000

B)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES >= 4.0

GROUP 2 : OPI IN ALL COURSES < 4.0

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4	SCRSEC5
BGSCR	1.00000						
INTSCR	.10505	1.00000					
SCRSEC1	.07034	.43154	1.00000				
SCRSEC2	-.01631	-.08563	.12869	1.00000			
SCRSEC3	.08876	.37701	.68833	.19995	1.00000		
SCRSEC4	.03466	-.16560	.08565	.56324	.13430	1.00000	
SCRSEC5	-.05852	.00733	.03997	.11759	.03376	.08419	1.00000
SCRSEC6	.00762	.04491	.31404	.37357	.22722	.41934	.14782

	SCRSEC6
SCRSEC6	1.00000

POOLED WITHIN GROUP CORRELATIONS

1984 - 86 GROUP OF STUIDENTS

A)GROUP CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 3.5

GROUP 2 : OPI IN CORE COURSES < 3.5

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	.21263	1.00000				
SCRSEC1	-.05421	.20944	1.00000			
SCRSEC2	-.13954	-.05887	.47570	1.00000		
SCRSEC3	-.11078	.23499	.65146	.32361	1.00000	
SCRSEC4	-.15085	.06772	.44389	.61106	.45128	1.00000

B)GROUP CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 4.0

GROUP 2 : OPI IN CORE COURSES < 4.0

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	.24900	1.00000				
SCRSEC1	-.01068	.31924	1.00000			
SCRSEC2	-.08904	.07916	.53485	1.00000		
SCRSEC3	-.06886	.31703	.68617	.38835	1.00000	
SCRSEC4	-.11333	.14344	.49182	.64163	.48758	1.00000

POOLED   WITHIN   GROUP   CORRELATIONS

1984 - 86   GROUP OF STUIDENTS

A)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES >= 4.0

GROUP 2 : OPI IN ELECTIVE COURSES < 4.0

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	.28916	1.00000				
SCRSEC1	.05122	.36432	1.00000			
SCRSEC2	-.02575	.11951	.58697	1.00000		
SCRSEC3	-.03094	.36354	.70817	.43876	1.0000u	
SCRSEC4	-.09860	.18265	.50088	.65614	.49513	1.00000

B)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES >= 4.3

GROUP 2 : OPI IN ELECTIVE COURSES < 4.3

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	.26881	1.00000				
SCRSEC1	.04466	35425	1.00000			
SCRSEC2	-.04189	.11331	.58104	1.00000		
SCRSEC3	-.02655	.35471	.71177	.44257	1.00000	
SCRSEC4	-.09406	.15987	.49632	.64670	.49803	1.00000

POOLED   WITHIN   GROUP   CORRELATIONS

1984 - 86   GROUP OF STUIDENTS

A)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES >= 3.8

GROUP 2 : OPI IN ALL COURSES < 3.8

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	.24260	1.00000				
SCRSEC1	-.01098	.29223	1.00000			
SCRSEC2	-.10983	.02387	.50850	1.00000		
SCRSEC3	-.07274	.29798	.67914	.36607	1.00000	
SCRSEC4	-.12571	.11775	.46827	.63103	.47296	1.00000

B)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES >= 4.0

GROUP 2 : OPI IN ALL COURSES < 4.0

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	.24145	1.00000				
SCRSEC1	-.01622	.30639	1.00000			
SCRSEC2	-.09416	.06617	.53468	1.00000		
SCRSEC3	-.08035	.30380	.67804	.37923	1.00000	
SCRSEC4	-.11836	.13656	.48667	.63768	.48463	1.00000

POOLED WITHIN GROUP CORRELATIONS

1985 - 87 GROUP OF STUIDENTS

A)GROUP CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 3.5

GROUP 2 : OPI IN CORE COURSES < 3.5

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	-.12060	1.00000				
SCRSEC1	.01605	.36372	1.00000			
SCRSEC2	-.08785	-.02149	-.01396	1.00000		
SCRSEC3	-.04004	.36090	.63447	.07664	1.00000	
SCRSEC4	-.02471	.05679	.13304	.23611	.20285	1.00000

B)GROUP CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 4.0

GROUP 2 : OPI IN CORE COURSES < 4.0

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	-.04250	1.00000				
SCRSEC1	.12035	.43922	1.00000			
SCRSEC2	-.03042	.00533	.08824	1.00000		
SCRSEC3	.09402	.44562	.69641	.18839	1.00000	
SCRSEC4	.09169	.16290	.27296	.30885	.35853	1.00000

POOLED   WITHIN   GROUP   CORRELATIONS

1985 - 87   GROUP OF STUIDENTS

A)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES >= 4.0

GROUP 2 : OPI IN LLECTIVE COURSES < 4.0

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	.02277	1.00000				
SCRSEC1	.15189	.46630	1.00000			
SCRSEC2	.04605	.13458	.15178	1.00000		
SCRSEC3	.14405	.48512	.70948	.26495	1.00000	
SCRSEC4	.15520	.23629	.30858	.39051	.39323	1.00000

B)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES >= 4.3

GROUP 2 : OPI IN ELECTIVE COURSES < 4.3

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	.01741	1.00000				
SCRSEC1	.16285	.47009	1.00000			
SCRSEC2	.02896	.12960	.16358	1.00000		
SCRSEC3	.15052	.48926	.70669	.27797	1.00000	
SCRSEC4	.13382	.23177	.30962	.37780	.40232	1.00000

POOLED   WITHIN   GROUP   CORRELATIONS

1985 - 87   GROUP OF STUIDENTS

A)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES >= 3.8

GROUP 2 : OPI IN ALL COURSES < 3.8

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	-.04896	1.00000				
SCRSEC1	.08967	.42966	1.00000			
SCRSEC2	-.02343	.06795	.08793	1.00000		
SCRSEC3	.08788	.45784	.69449	.21876	1.00000	
SCRSEC4	.08888	.19089	.26873	.34325	.37192	1.00000

B)GROUP   CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES >= 4.0

GROUP 2 : OPI IN ALL COURSES < 4.0

	BGSCR	INTSCR	SCRSEC1	SCRSEC2	SCRSEC3	SCRSEC4
BGSCR	1.00000					
INTSCR	-.03868	1.00000				
SCRSEC1	.12740	.45347	1.00000			
SCRSEC2	-.02737	.05244	.11840	1.00000		
SCRSEC3	.10712	.46857	.70291	.22950	1.00000	
SCRSEC4	.08437	.17898	.28642	.32235	.37791	1.00000

CLASSIFICATION   RESULTS

1983 - 85 GROUP OF STUDENTS

A) GROUP   CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 3.5

GROUP 2 : OPI IN CORE COURSES < 3·5

Actual Group		No. of Cases	Predicted Group Membership	
			1	2
Group OPI1>3.5	1	74	65 87.8%	9 12.2%
Group OPI1<3.5	2	26	11 42.3%	15 57.7%

Percent of "grouped" cases correctly classified: 80.00%

B) GROUP   CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 4.0

GROUP 2 : OPI IN CORE COURSES < 4.0

Actual Group		No. of Cases	Predicted Group Membership	
			1	2
Group OPI1>4.0	1	41	30 73.2%	11 26.8%
Group OPI1<4.0	2	59	23 39.0%	36 61.0%

Percent of "grouped" cases correctly classified: 66.00%

CLASSIFICATION RESULTS

1983 - 85 GROUP OF STUDENTS

A) GROUP CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES >= 4.0

GROUP 2 : OPI IN ELECTIVE COURSES < 4.0

Actual Group	No. of Cases	Predicted Group Membership	
		1	2
Group 1 OPI2>4.0	76	47 61.8%	29 38.2%
Group 2 OPI2<4.0	24	8 33.3%	16 66.7%

Percent of "grouped" cases correctly classified: 63.00%

A) GROUP CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES >= 4.3

GROUP 2 : OPI IN ELECTIVE COURSES < 4.3

Actual Group	No. of Cases	Predicted Group Membership	
		1	2
Group 1 OPI2>4.3	49	31 63.3%	18 36.7%
Group 2 OPI2<4.3	51	21 41.2%	30 58.8%

Percent of "grouped" cases correctly classified: 61.00%

CLASSIFICATION RESULTS

1983 - 85 GROUP OF STUDENTS

A) GROUP CLASSIFIC TION : GROUP 1 : OPI IN ALL COURSES >= 3.8

GROUP 2 : OPI IN ALL COURSES < 3.8

		No. of Cases	Predicted Group Membership	
Actual Group			1	2
Group	1	67	52	15
OPI3>3.8			77.6%	22.4%
Group	2	33	17	16
OPI3<3.8			51.5%	48.5%

Percent of "grouped" cases correctly classified: 68.00%

B) GROUP CLASSIFICATION : GROUP,1 : OPI IN ALL COURSES >= 4.0

GROUP 2 : OPI IN ALL COURSES < 4.0

		No. of Cases	Predicted Group Membership	
Actual Group				2
Group	1	49	33	16
OPI3>4.0			67.3%	32.7%
Group	2	51	18	33
OPI3<4.0			35.3%	64.7%

Percent of "grouped" cases correctly classified: 66.00%

CLASSIFICATION RESULTS

1984 - 86 GROUP OF STUDENTS

A) GROUP CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 3.5

GROUP 2 : OPI IN CORE COURSES < 3.5

Actual Group	No. of Cases	Predicted Group Membership 1	2
Group 1 OPI1>3.5	78	76 97.4%	2 2.6%
Group 2 OPI1<3.5	18	7 38.9%	11 61.1%

Percent of "grouped" cases correctly classified: 90.63%

B) GROUP CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 4.0

GROUP 2 : OPI IN CORE COURSES < 4.0

Actual Group	No. of Cases	Predicted Group Membership 1	2
Group 1 OPI1>4.0	54	42 77.8%	12 22.2%
Group 2 OPI1<4.0	42	21 50.0%	21 50.0%

Percent of "grouped" cases correctly classified: 65.63%

CLASSIFICATION RESULTS

1984 - 86 GROUP OF STUDENTS

A) GROUP CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES >= 4.0

GROUP ˹ : OPI IN ELECTIVE COURSES < 4.0

Actual Group	No. of Cases	Predicted Group Membership 1	2
Group 1 OPI2>4.0	73	46 63.0%	27 37.0%
Group 2 OPI2<4.0	23	8 34.8%	15 65.2%

Percent of "grouped" cases correctly classified: 63.54%

B) GROUP CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES >= 4.3

GROUP 2 : OPI IN ELECTIVE COURSES < 4.3

Actual Group	No. of Cases	Predicted Group Membership 1	2
Group 1 OPI2>4.3	49	29 59.2%	20 40.8%
Group 2 OPI2<4.3	47	20 42.6%	27 57.4%

Percent of "grouped" cases correctly classified: 58.33%

CLASSIFICATION RESULTS

1984 - 86 GROUP OF STUDENTS

A) GROUP CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES >= 3.8

GROUP 2 : OPI IN ALL COURSES < 3.8

Actual Group		No. of Cases	Predicted Group Membership	
			1	2
Group OPI3>3.8	1	66	59 89.4%	7 10.6%
Group OPI3<3.8	2	30	15 50.0%	15 50.0%

Percent of "grouped" cases correctly classified: 77.08%

B) GROUP CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES >= 4.0

GROUP 2 : OPI IN ALL COURSES < 4.0

Actual Group		No. of Cases	Predicted Group Membership	
			1	2
Group OPI3>4.0	1	57	45 78.9%	12 21.1%
Group OPI3<4.0	2	39	21 53.8%	18 46.2%

Percent of "grouped" cases correctly classified: 65.63%

CLASSIFICATION   RESULTS

1985 - 87 GROUP OF STUDENTS

A) GROUP   CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 3.5

GROUP 2 : O.1 IN CORE COURSES < 3.5

Actual Group		No. of Cases	Predicted Group Membership 1	2
Group OPI1>3.5	1	66	64 97.0%	2 3.0%
Group OPI1<3.5	2	14	5 35.7%	9 64.3%

Percent of "grouped" cases correctly classified: 91.25%

B) GROUP   CLASSIFICATION : GROUP 1 : OPI IN CORE COURSES >= 4.0

GROUP 2 : OPI IN CORE COURSES < 4.0

Actual Group		No. of Cases	Predicted Group Membership 1	2
Group OPI1>4.0	1	45	35 77.8%	10 22.2%
Group OPI1<4.0	2	35	11 31.4%	24 68.6%

Percent of "grouped" cases correctly classified: 73.75%

CLASSIFICATION   RESULTS

1985 - 87 GROUP OF STUDENTS

A) GROUP   CLASSIFICATION : GROUP 1 : OPI IN ELECTIVE COURSES >= 4.0

GROUP 2 : OPI IN ELECTIVE COURSES < 4.0

| Actual Group | No. of Cases | Predicted Group Membership | |
		1	2
Group 1 OPI2>4.0	54	30 55.6%	24 44.4%
Group 2 OPI2<4.0	26	12 46.2%	14 53.8%

Percent of "grouped" cases correctly classified: 55.00%

B) GROUP   CLASSIFICATION : GROUP 1. : OPI IN ELECTIVE COURSES >= 4.3

GROUP 2 : OPI IN ELECTIVE COURSES < 4.3

| Actual Group | No. of Cases | Predicted Group Membership | |
		1	2
Group 1 OPI2>4.3	38	24 63.2%	14 36.8%
Group 2 OPI2<4.3	42	15 35.7%	27 64.3%

Percent of "grouped" cases correctly classified: 63.75%

CLASSIFICATION RESULTS

1985 - 87 GROUP OF STUDENTS

A) GROUP CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES >= 3.8

GROUP 2 : OPI IN ALL COURSES < 3.8

Actual Group		No. of Cases	Predicted Group Membership	
			1	2
Group OPI3>3.8	1	55	41 74.5%	14 25.5%
Group OPI3<3.8	2	25	8 32.0%	17 68.0%

Percent of "grouped" cases correctly classified: 72.50%

B) GROUP CLASSIFICATION : GROUP 1 : OPI IN ALL COURSES >= 4.0

GROUP 2 : OPI IN ALL COURSES < 4.0

Actual Group		No. of Cases	Predicted Group Membership	
			1	2
Group OPI3>4.0	1	49	37 75.5%	12 24.5%
Group OPI3<4.0	2	31	11 35.5%	20 64.5%

Percent of "grouped" cases correctly classified: 71.25%