

**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**REGIONAL EFFECTS ON THE
ACADEMIC PERFORMANCE OF
FRESHMAN STUDENTS IN THE
FACULTY OF SCIENCE**

**BY
ZEWDU TEKA TEMERE**

JUNE , 2001

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Abstract

The purpose of this study is to conduct an empirical investigation on academic performance of freshman students of the Faculty of Science , AAU. A random sample of 772 students have been selected from those students who have been enrolled in the Faculty in academic years 1995/96,1996/97,1997/98 and 1999/2000. The students have been grouped into two strata; Addis Ababa and out-of-Addis Ababa region. Non-parametric Statistical methods such as Wilcoxon and Ansari-Bradley two sample tests, Lepage test and Spearman coefficient of correlation based on ranks were used to analyse the data. The results revealed that at a 0.01 degree of assurance there is no significant difference in performance between the two groups students at freshman level. The results of the analysis also showed that there is a significant correlation between ESLCE GPA and freshman GPA.

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CHAPTER ONE

INTRODUCTION

1.1 General Background

The entire body of classical inference techniques is based on fairly specific assumptions regarding the nature of the underlying population distribution; usually its form and some parameter values must be stated. In hypothesis testing certain test statistics can be developed using mathematics which is elegant and beautiful. Nonetheless, the distribution of a test statistic under the null hypothesis is qualified by certain prerequisite conditions, and therefore all conclusions reached using test techniques are exactly valid only so long as the assumptions themselves can be substantiated. In data analysis, it is usually assumed that the random variables are normally distributed. In many practical problems, however, the assumption of normality may not be realistic. Those assumptions, which are deemed reasonable by empirical evidence or past experience, are not the desired ones. Alternatively, the population or the sample data may be too small or previous experience too limited to determine what is a reasonable assumption (Tan and Balakrishan, 1988). In connection with the assumption of normality Geary (1947) says "Normality is myth; there never was and never will be, a normal distribution"¹. This might be an over statement but the fact is that non-normal distributions are quite prevalent in practice, and to assume normality instead might lead to erroneous statistical inferences.

¹ *Communication in Statistics: Theory and methods. Vol. 17, No 7, pp 2403 - 2415*

If the researcher's particular concern is in the area of application, he/she may not understand or even be aware of the preconditions implicit in the derivation of the distribution of a test statistic and how statistical techniques could be used. In any of these situations where awareness about the issues raised prevail the results obtained are often misleading. There are alternative test techniques that can be used to circumvent such problems.

Although it is sometimes difficult to describe an appropriate theoretical model for the experiment, the real difficulty often comes after the model has been defined, in the form of finding the probability associated with the model. Many reasonable models have been introduced for which no probability solution have ever been found. Thus statisticians have often changed the model slightly in the hope that the change in the model would be slight so that the changed model was still fairly realistic, thereby enabling one to obtain exact solutions for approximate problems. This is the method used in parametric statistics (Conover, 1980).

In the late 1930's a non-parametric approach to the problem of finding probabilities began to gather some momentum. This approach involved making relaxed assumptions. The change in the model uses unsophisticated methods that do not require restrictive assumptions about the distribution to find the desired probability or at least a good approximation to those probabilities. Thus, approximate solutions to exact problems were found as opposed to exact solution to approximate problems provided by parametric statistics (Conover, 1980)

Statistical methods have to be suitable for the type of data to which they are to be applied. In this study the statistical analysis of the data and the interpretation of

results of the analysis is based on non-parametric statistical methods or distribution-free statistical procedures. Some statisticians make a distinction between the terminology non-parametric and distribution-free. However, both are in the same spirit, since one relates to the distribution of the test statistic and the other to the type of hypothesis to be tested.

The main advantages of non-parametric tests lies in their very generality and an assessment of their performance under mild assumptions and their expediency.

In the present work we will apply two non-parametric procedures to test for differences in location and in scale of two independent populations. The subjects of study are first year university students in the Faculty of Science, Addis Ababa University.

The test methods will be applied to the Grade Point Average (GPA) of four batches of freshmen students. Each batch of students has been grouped into two categories, namely those who came from Addis Ababa (AA) and from Out-of-Addis Ababa (OAA). This classification has been selected for the sake of the present comparative study; it could even be more refined according to the objectives of the research undertaking one would like to pursue. But as far as the interest of this study is concerned the above classification is appropriate. The purpose of classifying the students into the above two categories is based on the suspicion that the concentration of schools both in terms of quality and quantity, availability of educational materials, more qualified and experienced teachers and others, within Addis Ababa than in other administrative regions might possibly contribute to differences in achievement. The comparison of achievement, in this

case limited to the area of the Natural Sciences, could be gauged by studying the GPA of the first semester in the first year as well as the Cumulative GPA, that is the accumulated (average) GPA of the first and second semesters at the end of the first year of study. The study attempts to investigate if there is any association between high school achievement and university achievement for one entry of students.

Nonetheless, the methods of analysis uses ranks rather than the actual GPAs and CGPAs. Because rank tests are known to be more robust than distribution oriented procedure, in terms of *type I error rate* and in *protecting against outliers*.

1.2 Statement of the Problem

Each year a certain percentage of high school students who pass the Ethiopian Schools Leaving Certificate Examination (ESLCE) are admitted to different institutions of higher learning. Because of shortage of space only those students with highest ESLCE GPAs are given the opportunity to join universities and colleges. The proportion of high school students admitted to the Faculty of Science from Addis Ababa (AA) is large as compared to other regions. To be more specific the proportion of AA students in the academic year 1995/96, 1996/97, 1997/98 and 1999/2000 were about 44%, 46%, 39% and 31%, respectively. It is assumed that the observed phenomenon could be attributed to the large number of high schools, availability of educational materials and other facilities in Addis Ababa. As a consequence high school students from Addis Ababa have a better preparation for ESLCE. But does this situation imply that, students from Addis Ababa are more successful than students of other regions at

least in their academic achievement in the first year at the Faculty of Science?
The answer to this question is the main concern of this paper.

There is little research on the problem that the present work attempts to address. The present study attempts to fill in the gap created in educational research undertaking by providing empirical evidence on the issue to be investigated.

1.3 Objective of the Study

There are different factors that hinder a student from being successful. In the Ethiopian context one of the main factors is assumed to be the region where the student attended the high school. The purpose of this study is to conduct an empirical investigation that will provide a comparison of academic performance of Freshman level AA and OAA students at the Faculty of Science. The purpose of the comparison is to see if the difference in performance could, partly, be due to the region where a student attended high school.

1.4 Problems and Limitation of the Study

Every conclusion in this paper is ultimately concerned with freshman students of 1995/96, 1996/97, 1997/98 and 1999/2000. The study excludes those students who did not sit for the second semester final examination due to various reasons (withdrawal, dropping-out, dismissal, etc.).

Due to the unavailability of full information about the 1998/99 academic year freshmen students, the data for this year were not included in the analysis.

The *post-stratification* method of sampling is the only possible sampling technique for the data at hand. The GPAs and CGPAs were realised after the sample was taken using the information about region and the Identity Number of the students.

Unavailability of non-parametric software for testing the dispersion problem made the analysis time consuming.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Abera (1999) conducted a study on some selected factors affecting the academic performance of students at the Kotebe College of Teacher Education. The study attempted to assess the most dominant predictors of the first-year first- semester average score of students at the College. Stepwise regression was applied to analyse the data based on 102 randomly selected freshman students who were admitted to the College in the year 1998/99. The study shows that, among the different explanatory variables included in the model, the region where the student attended high school and few other explanatory variables, significantly predict first-year first-semester average academic achievement. The region where the student attended high school has a significant effect on performance at the College.

Asmerom et al. (1989) studied the performance of students at regional level. The study was based on a population of first year students taken for six consecutive years between 1978 and 1984. The study indicates that almost 35% of all *drop-out* were students who have been admitted from Addis Ababa administrative region. Even if dropping-out may not purely specify the students' poor performance the evidence implies that dropping-out from higher institutions is basically dependent on academic performance. The reason for this, according to Asmerom et al., is that that students from Addis Ababa might have been over-confident in themselves, presumably, because they had relatively better grades in ESLCE, and might have not worked hard during their first year in the university.

The conclusion of the study is that OAA students with low ESLCE GPA seem to perform better than the Addis Ababa region students in of higher education.

Fentaw (1991) studied factors affecting students' performance in Addis Ababa University (AAU). The study was based on a random sample of 120 students who were prospective graduates of the 1990/91 academic year of the College of Social Sciences and the Faculty of Science. It was found that, among others, the factor region where a student went to high school contributed largely to differences in performance of students.

Habte (1988) studied possible factors that affect students' performance in the Faculty of Science on first year regular students. The analysis based on a sample data of size 150 of freshman students shows that ESLCE GPA and Freshman GPA are highly correlated. In addition to this the study also indicates that there was a difference in the performance of students from Addis Ababa and other regions.

A correlation study was made by Micheal and Johanne King in 1972. They studied the relationship between results in some selected subjects of ESLCE GPA and first semester University GPA. Apart from this the study made an attempt to assess the difference in the performance of students in relation to the provinces where students received their pre-university education. The study was based on the results of 1123 Freshman students of the then Haile Selassie I University, now AAU. It was observed that province of birth, place where elementary education and secondary education was/were received do not show significant effect on university performance.

Mohammed (1989) attempted to test whether the place where pre-university education was received resulted in any real difference in performance between AA and OAA students of the Department of Statistics. The group of students consisted of a cohort who finished their first semester of the freshman program in 1981/82 and later on graduated in 1984/85. The findings of the study suggested that there is an overall performance trend regardless of the region from which a student came.

A more recent work by Mulugeta (1997) based on a random sample of 187 Social Science students, of whom 85 were from Addis Ababa and 102 from out of Addis Ababa, concluded that the difference in performance of AA and OAA students in the subjects English and Quantitative Methods is significant. The result indicates that AA students were relatively superior in their English performance over the OAA students while the latter performed better than the former in Quantitative Methods.

Tekle (1990) concluded that the place where a student got pre-university education has no influence on students' performance at college level in Ethiopia.

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CHAPTER THREE

PROCEDURES AND METHODS OF DATA ANALYSIS

3.1 Procedures

3.1.1 Data Collection and Sources

The data set used in this study consists of two independent random samples of 4 batches of freshman students who joined the Faculty of Science in the academic years, 1995/96, 1996/97, 1997/98 and 1999/2000.

The two independent random samples are the achievements of students from Addis Ababa and students from outside Addis Ababa. For the purpose of empirical investigation GPA and CGPA of freshmen students in the four years were considered. The data were collected from the Freshman Programme Office of the Faculty of Science. The two samples of study from the four cohorts consisted of a total number of 772 students. The sampled number of students and their GPA of both regions are given in the Appendix.

In the process of data collection we encountered few missing observations. These observations were due to dropping-out, withdrawal and dismissal. Therefore, after careful examination of the data, these observations have been discarded from the sample. As a result the actual sample size was reduced from the one expected to take before.

3.1.2 Variables included in the Study of Assumptions

Throughout this paper we use the variables X and Y to stand for semester GPA and CGPA of freshman OAA and AA students, respectively.

Furthermore, we assume that X and Y have unknown continuous distribution F and G respectively that might differ in location and/or dispersion. We also assume that the random samples we obtain from X and Y are independent.

It is also assumed that there are m observations from X and n observations from Y . Therefore, the realisations of X and Y are denoted by x_1, \dots, x_m and y_1, \dots, y_n respectively. The statistical analysis will be based on the combined data, and on the ranks assigned to the observations afterwards. Thus, the observations in the pooled sample will have size $N (= n+m)$ and these will be arranged according to their magnitude from smallest to largest. The assignment of ranks depends on whether we want to test for location and/or dispersion differences. The variable Z stands for the pooled sample of size N . If there are tied observations in the pooled sample, that is if two or more observations have equal values, to each tied observation we assign the average of the ranks in the tied group.

3.1.3 Sample Selection

Taking each freshmen student of the academic years 1995/96, 1996/97, 1997/98 and 1999/2000 as a sampling unit, random sampling is used as a sampling technique.

Clearly, too large a sample implies a waste of resources, and too small a sample diminishes the utility of the results. So we have tried to be cautious in specifying an appropriate sample size with a *minimum error* that we can tolerate. To do this the sampling is designed to *minimize variation by fixing the cost*. In generating the random samples the sample selection is done using the SPSS statistical software. Occasionally, sampling problems arise where we want to make stratification but we cannot place the sampling units into their correct strata until the sample is selected. This means then that stratification will be appropriate after selection of the sample. In this paper the samples were selected using the method known as post- stratification.

For the analysis of the data we form two strata. The first stratum consists of freshman students from AA and the other stratum contains OAA students. But the strata will be formed after selection of the sample of size n from the pooled population. The pre-stratification will not be applicable, because as we pointed out earlier, the data were not sufficient to apply such a method.

The method adopted here is that without classifying the two regions, we try to find out the proportion of AA and OAA students (N_i/N , $i = 1,2$) where N_1 and N_2 are the population sizes of AA and OAA students, respectively.

Therefore we first estimate the sample size n and try to allocate this n into two classes (strata). That is the sample size n will be divided into n_1 students of AA and n_2 OAA students. Note that n_1 and n_2 are random since they can change from sample to sample even though n is fixed. Thus, this sample is not exactly a stratified random sampling (which is the one obtained by separating the population

elements into non-overlapping groups (strata), and then selecting a simple random sample). However, if N_i/N is known and $n_i \geq 20$ for each stratum, then this method of stratification after selecting the sample is nearly as accurate as stratified random sampling with proportional allocation (Scheaffer, Mendenhall and Ott, 1990).

Suppose Z is the first year students GPA regardless of region.

When estimating the population mean in each academic year, we wish to control the relative error r not exceeding 5% ($r = 0.05$), then it should be that

$$\Pr \left[\frac{|\bar{z} - \bar{Z}|}{\bar{Z}} \geq r \right] = \Pr (|\bar{z} - \bar{Z}| \geq r\bar{Z}) = \alpha$$

where r is the relative error of the sample and α is the level of degree of assurance.

To determine n we use the formula, (see Cochran, 1977)

$$n = \frac{n_o}{1 + \frac{(n_o - 1)}{N}} \cong \frac{n_o}{1 + \frac{n_o}{N}}$$

where $n_o = \left(\frac{tS}{r\bar{Z}} \right)^2$ and t is the abscissa of the normal curve that cuts off an area of α at the tails ($\alpha = 0.05$).

Note that the population characteristics on which n depends is its coefficient of variation S/\bar{Z} . This is more stable and easier to guess in advance than S itself. From previous studies by Mekonnen and Habte, the coefficient of variation

approximately varies from 0.2 to 0.6. For this study we used an estimated average value of 0.445 for the academic years 1995/96 and 1996/97. Assuming an increase in average mean GPA in subsequent years and to avoid bias, we used 0.357 for academic years 1997/98 and 1999/2000.

After getting n we try to find out how many come from Addis Ababa and OAA using proportional allocation. Note that n_1 and n_2 ($n_1+n_2 = n$) will be determined for each year independently.

The post-stratification sampling technique that we used in this paper is based on the population sample size of the students given in Table 1. The table shows the total number of *science students* who were admitted to the Faculty of Science in four Academic years.

Table 1: The population size of freshman students

Year	Population size A.A	Population size out of A.A	Total
1995/96	360	460	820
1996/97	495	592	1087
1997/98	475	758	1233
1999/200	282	637	919
Total			4059

Applying the sampling techniques discussed earlier to the population size given in Table 1 we arrive at the corresponding sample sizes given in Table 2. Those who were forced to interrupt their study for various reasons like withdrawal, dismissal,

dropping-out and others were not considered in the study. As a result the actual (reduced) sample sizes are those shown in brackets. Therefore the analysis and interpretation of the data were based on these reduced sample sizes.

Table 2: Theoretical and actual sample size

Year	Sample size A.A	Sample size out of A.A	Total
1995/96	93 (92)	128 (125)	221 (217)
1996/97	118 (115)	134 (125)	252 (240)
1997/98	75 (69)	130 (112)	205 (181)
1999/2000	48 (43)	97 (91)	145 (134)
Total			823 (772)

We estimate the sample mean semester GPA for the j th semester of students coming from region k by

$$\bar{U}_{jk} = \sum_i^{n_k} \frac{U_{ijk}}{n_k}$$

where U_{ijk} is the observation (GPA) for i^{th} student, $i = 1, 2, \dots, n_k$, j^{th} semester, $j = 1, 2$ and in region k , $k = 0, 1$; the coding $k = 1$ if a student comes from AA and $k = 0$ otherwise.

The stratification mean for the j th semester thus becomes

$$(\bar{U}_{st})_j = \frac{1}{N} (N_1 \bar{U}_{j_1} + N_2 \bar{U}_{j_2})$$

The post-stratification estimator (\bar{U}_{st}) will not have the same variance as the stratified sampling mean, because the stratification was not designed into the sampling plan. However, an approximate variance can be worked out as follows.

$$\text{Let } \frac{N_i}{N} = W_i \quad i = 1, 2$$

be the proportion of units in each stratum. In post-stratification n_i is a random variable with expectation $E(n_i) = nW_i$, $i = 1, 2$. On the other hand, if n_i were fixed, the expression for the estimated variance $V(\bar{U}_{st})$ will be (see Scheaffer, Mendenhall and Ott, 1990)

$$\hat{V}(\bar{U}_{st}) = \sum_{i=1}^2 W_i^2 \frac{S_i^2}{n_i} \left(\frac{N_i - n_i}{N_i} \right)$$

where S_i^2 is the stratum variance, $i = 1, 2$

However, in the situation where n_i is random the above will be approximated by replacing $1/n_i$ by its expected value. Unfortunately, it is difficult to find the expected value of the reciprocal of a random variable, but a good approximation is given by

$$E\left(\frac{1}{n_i}\right) \approx \frac{1}{nW_i} + \frac{1 - W_i}{n^2 W_i^2}$$

Substitution of this expression in the estimator of the variance above for $1/n_i$ yields

$$\hat{V}_p(\bar{U}_{st}) = \frac{N-n}{Nn} \sum_{i=1}^L W_i S_i^2 - \frac{1}{n} \sum_i (1-W_i) S_i^2$$

The first term in $V_p(U_{st})$ is the variance that is obtained from a stratified sample mean under proportional allocation. The term after the minus sign above is always non-negative and shows the amount of increase in variance due to post-stratification rather than pre-stratification. This becomes quite small if n is very large. As a result the variance of post-stratification resembles pre-stratification.

3.2 Methodology

3.2.1 Statistical Methods Used

The statistical analysis of the data and the interpretation of the results of the analysis are based on non-parametric statistical methods for two samples.

The usual two-sample situation is one in which the experimenter has obtained two samples from two different populations and wishes to use a statistical test to see if the null hypothesis that the two populations are identical can be rejected. Here the most interesting difference is in location and scale. The null hypothesis is formulated as "there is no difference in performance of students coming from AA and OAA". For the purpose of the analysis we use the non-parametric tests that are known as Wilcoxon Rank Sum Test, Ansary-Bradley Test and Lepage Test.

In addition to these, we will try to test the relationship between ESLCE GPA and freshmen GPA using the Spearman Coefficient of Correlation for a single entry of students.

3.2.2 The Statistical Problems and their Solutions

3.2.2.1 Wilcoxon Rank Sum test (for location difference)

This test is used to check for the existence of a difference in the medians of two populations. In the present study we consider the grades of freshman students coming from Addis Ababa and OAA to assess whether there is a difference in median performance. That is, we try to test the null hypothesis of identical distribution with the alternative that X and Y populations are the same except in a shift in the (unknown) amount of θ (the median).

Let $X_1 \dots X_m$ be random sample from some unknown continuous distribution F and $Y_1 \dots Y_n$ be random sample from some unknown continuous distribution G

Then $G(x) = P(Y \leq x) = P(X \leq x - \theta) = F(x - \theta)$.

This means that $X + \theta$ and Y have the same distribution or that X is distributed as $Y - \theta$. When $\theta < 0$, the median of the X population is larger than the median of the Y population, and when $\theta > 0$ the vice versa.

Furthermore, we assume that X_1, \dots, X_m and Y_1, \dots, Y_n are independent. Under this assumption the population have the same shape and scale and the amount of difference in location is θ .

Therefore the test problem at a pre-assigned level of significance α becomes

$$H_0 : G(x) = F(x) \quad \text{against} \quad H_1 : G(x) = F(x - \theta)$$

or equivalently

$H_0 : \theta = 0$ against $H_1 : \theta \neq 0$.

where H_0 and H_1 stand to represent the null and alternative hypothesis respectively.

Construction of the Wilcoxon Rank Sum Test Statistics

Many of the non-parametric statistics for general location problem use rank statistics since the ranks of X 's relative to the ranks of the Y 's provide information about relative size of the population medians.

In order to construct the test statistic we mix the observations of X and Y variables and give ranks of the combined sample data. Then we take the sum of the ranks of Y variable from the newly formed sample of size $N (=n+m)$. As the value of this sum could take any value, and therefore unpredictable it is a random variable (Eshetu,1998).

In testing hypothesis the value which a test statistic takes (based on sample observation) is used as a yardstick to check if the null hypothesis cannot be rejected with high degree of probability. Normally in statistical tests the most commonly used probability of sureness are as high as 90%, 95%, 99%, (i.e. $\alpha = 0.1, 0.05, 0.01$) (Eshetu, 1998).

While testing for the difference in location, the sum of the ranks of the Y observation will be compared with tabulated values of the Wilcoxon rank sum test to reach a decision whether or not to reject the null hypothesis under the given level of significance α . The tabulated values are functions of m, n and the level of significance α .

Let the rank of x_i be R_i , the rank of y_i be Q_i and let R_i^* stand for the rank in pooled sample. Therefore the rank sum of y 's will be

$$W = \sum_i^N c(i)R_i^*$$

$$\text{where } c(i) = \begin{cases} 1, & \text{if } R_i^* \text{ is from } Y \\ 0, & \text{otherwise.} \end{cases}$$

Since W is random, its expectation and variance under the null hypothesis are

$$E(W)_{H_0} = \frac{n(N+1)}{2}$$

$$V(W)_{H_0} = \frac{mn(N+1)}{12}$$

In the presence of tied observations, the expectation remains the same but the variance becomes, (See Hollander and Wolf, 1973)

$$V(W)_{H_0} = \frac{mn}{12} \left[N+1 - \frac{\sum_{j=1}^r t_j(t_j^2 - 1)}{N(N-1)} \right]$$

where r is number of tied groups and t_j is the size of j^{th} group

If m and n are small, then the null hypothesis will be rejected if the calculated value $W \notin [w_{\alpha/2}, w_{1-\alpha/2}]$ where $w_{\alpha/2}$ and $w_{1-\alpha/2}$ are read from tables.

On the other hand If $(m,n) \rightarrow \infty$, the normalised Wilcoxon rank sum statistic

$$W^* = \frac{W - E_{H_0}(W)}{\sqrt{\text{var}_{H_0}(W)}} \underset{\text{asy}}{\sim} N(0,1)$$

Thus the decision to reject the null hypothesis will be based on the comparison of W^* is with the tabulated z-value. The null will be rejected if the calculated value of $W^* \notin [z_{\alpha/2}, z_{1-\alpha/2}]$.

3.2.2.2 The Ansari-Bradley Test (for scale difference)

The procedure discussed in the Ansari-Bradley test provides a non-parametric test of scale/dispersion. The test for difference in scale is applicable if it is known that the two populations X and Y have the same median. This test is the parametric alternative to the F-test for differences in variance that is quite sensitive to departure from Normality. The Ansari-Bradley test belongs to a class of linear rank statistics given by

$$S = \sum_{i=1}^N a_n(R_i)$$

$$\text{where } a_N(i) = (N+1)/2 - |i - (N+1)/2|.$$

Here we assume that X_1, \dots, X_m and Y_1, \dots, Y_n are independent random samples from continuous distribution F and G respectively. We also require that both distributions to be of the same type and to have the same location parameter. The relationship between F and G is given by $G(x) = P(Y \leq \eta x) = F(\eta x)$ for all x, $\eta > 0, \eta \neq 1$.

This means X/η and Y have the same distribution for any positive η . The point of interest here is η whether it is different from 1 or not. When $\eta > 1$, the population of Y is more dispersed than X ; the case $0 < \eta < 1$ indicates that the population of X is more dispersed than Y .

The test problem of existence of difference in scale at α -level of significance, therefore, becomes

$$H_0 : \eta = 1 \quad \text{against} \quad H_1 : \eta \neq 1 .$$

In other words, the null hypothesis can be stated as there is no scale difference between the two populations, while the alternative implies existence of difference in scale.

Construction of the Ansari-Bradley Test Statistic

The test statistic will be constructed by pooling the two populations together and assigning ranks to the sorted values. But the ranking method here gives more weight to the middle observations than the extreme observations.

After taking the pooled ordered sample Z_1, Z_2, \dots, Z_N we assign the ranks

$$1, 2, \dots, [\frac{1}{2}(N+1)] \text{ if } N \text{ is odd}$$

$$1, 2, \dots, [N/2] \text{ if } N \text{ is even}$$

to these observation starting from the smallest Z_1 and going towards the median, and assigning the same ranks in the opposite direction from largest Z towards the median. Now the test statistics C is the sum of those "ranks" corresponding to the

observation from the sample Y and is given by, (See Gibbons and Chakraborti, 1992).

$$C = \sum_{i=1}^N \left[\frac{1}{2}(N+1) - \left| Q_i - \frac{1}{2}(N+1) \right| \right]$$

where Q_i is the rank of Y, or using the score function the statistic C can be given as

$$C = \sum_{i=1}^N c(i)a(R_i^*)$$

where $a(R_i^*) = \frac{1}{2}(N+1) - |R_i^* - \frac{1}{2}(N+1)|$, and R_i^* is the rank of the i^{th} observation in the pooled sample, and

$$c(i) = \begin{cases} 1, & \text{if } R_i^* \text{ is from Y} \\ 0, & \text{otherwise.} \end{cases}$$

The expectation and variance of C under the null hypothesis are

$$E_{H_0}(C) = \begin{cases} n(N+2)/4, & N \text{ even} \\ n(N+1)^2/4N, & N \text{ odd} \end{cases}$$

$$V_{H_0}(C) = \begin{cases} \frac{mn(N+2)(N-2)}{48(N-1)}, & N \text{ even} \\ \frac{mn(N+1)(3+N^2)}{48N^2}, & N \text{ odd} \end{cases}$$

In the presence of ties, expectation remains the same while the variance of C will be modified and given by

$$\text{Var}_{H_0}(C) = \begin{cases} \frac{mn \left[16 \sum_{j=1}^l t_j r_j^2 - N(N+2)^2 \right]}{16N(N-1)}, & \text{N even} \\ \frac{mn \left[16N \sum_{j=1}^l t_j r_j^2 - (N+1)^4 \right]}{16N^2(N-1)}, & \text{N odd} \end{cases}$$

where l is the number of tied groups, t_j is the size of j^{th} tied group and r_j is the average rank of the j^{th} tied group.

For small sample size $n, m < 20$, the calculated value of C is compared with the tabulated value not to reject or reject the null hypothesis. The null will be rejected in favour of the alternative if the calculated $C \notin [c_{\alpha/2}, c_{1-\alpha/2}]$ where $c_{\alpha/2}$ and $c_{1-\alpha/2}$ are obtained from tables.

For large sample size, $\min(m, n) \rightarrow \infty$, the standardised version of C is

$$C^* = \frac{C - E_{H_0}(C)}{\sqrt{\text{Var}_{H_0}(C)}} \underset{\text{asy}}{\sim} N(0, 1)$$

In this case the null hypothesis will be rejected if $C^* \notin [z_{\alpha/2}, z_{1-\alpha/2}]$.

3.2.2.3 Lepage Test

This test is a rank test for location and dispersion between two populations. The test investigates the existence of difference both in location and dispersion. Unlike the Ansari-Bradley test that assumes no location difference the Lepage test is useful in detecting the dispersion as well as the location difference that may exist between the two population.

The test encompasses the Wilcoxon test for location and the Ansari-Bradley test for scale/dispersion at the same time. We assume as before that X_1, \dots, X_m and Y_1, \dots, Y_n are random samples from two continuous distribution F and G , respectively.

The hypothesis to be tested at a level α is given by

$$H_0 : F(t) = G(t) \quad \text{for all } t \in \mathbb{R} \quad \text{against} \quad H_1 : F(t) \neq G(t) \quad \text{for some } t \in \mathbb{R},$$

$$\text{where } F(t) = H\left(\frac{t - \theta_1}{\eta_1}\right), \quad G(t) = H\left(\frac{t - \theta_2}{\eta_2}\right), \quad \theta_1, \theta_2 \in \mathbb{R}, \quad \eta_1, \eta_2 \in \mathbb{R}^+, \quad \eta_1, \eta_2 \neq 1.$$

Otherwise the test problem becomes

$$H_0 : \theta_1 = \theta_2 \text{ and } \eta_1 = \eta_2 \quad \text{against} \quad H_1 : \theta_1 \neq \theta_2 \text{ and } \eta_1 \neq \eta_2.$$

The test statistic for Lepage test is given by

$$D = \left[\frac{W - E_{H_0}(W)}{\sqrt{\text{Var}(W)}} \right]^2 + \left[\frac{C - E_{H_0}(C)}{\sqrt{\text{Var}(C)}} \right]^2.$$

Observe that the above expression is the sum of the standardised squares of the Wilcoxon rank sum statistic and that of the Ansari-Bradley test statistic.

In situations where the sample size is small ($m, n \leq 20$) the null hypothesis H_0 will be rejected if the calculated $D \geq d_{1-\alpha/2}$, where $d_{1-\alpha/2}$ is obtained from tabulates. For large sample approximation ($\min(m, n) \rightarrow \infty$) under H_0 the statistic $D \sim \chi^2(2)$, that is D has an approximate central χ^2 distribution with 2 degrees of freedom. Therefore the null hypothesis will be rejected if the calculated $D \geq \chi^2(2; 1-\alpha/2)$.

3.3 Testing for Association

Besides testing for differences in location and scale we can also test if there is any association between performance in the ESLCE and first year results.

The hypothesis of interest then becomes:

H_0 : There is *no* association between ESLCE GPA and first year GPA

H_1 : There is an association between ESLCE GPA and first year GPA,

at a pre-assigned α level of significance.

The data in this case must be given as pairs, say (x_i, y_i) , $i = 1, \dots, N$. Without loss of generality we assume that the first and second entries are ESLCE GPA and university GPA (GPA or CGPA). Suppose R_i is the rank of x_i (with ranking among the first entries only) and Q_i is the rank of y_i (with ranking among the second entries only).

Define a random variable D which will become our test statistic by

$$D = \sum (R_i - Q_i)^2$$

If ties occur the ranks will be modified by the average of the ranks in the tied group.

Let those average ranks be denoted by R_i^* and Q_i^*

$$D^* = \sum (R_i^* - Q_i^*)^2$$

and approximation of the distribution of D^* for large N given by (see Lehmann and D'Abrera, 1975)

$$D^{**} = \frac{D^* - E(D^*)}{\sqrt{Var(D^*)}}$$

where
$$E_{H_0}(D^*) = \frac{1}{6}(N^3 - N) - \frac{1}{12} \sum_{i=1}^g (t_i^3 - t_i) - \frac{1}{12} \sum_{j=1}^h (r_j^3 - r_j)$$

$$V_{H_0}(D^*) = \frac{(N-1)(N^2)(N+1)^2}{36} \left[1 - \frac{\sum_{i=1}^g t_i^3 - t_i}{[N^3 - N]} \right] \left[1 - \frac{\sum_{j=1}^h r_j^3 - r_j}{[N^3 - N]} \right]$$

Where t_i number of observation in the i^{th} tied group ; in the first series of observation

r_j number of observation in the j^{th} tied group ; in the second series of observation

g number of tied groups in the first series of observation

h number of tied groups in the second series of observations.

H_0 will be rejected if the absolute value of

$$D^{**} \geq z_{1-\alpha/2}$$

The strength of the association between X and Y is measured by the Spearman-rank correlation coefficient

$$r_s = \frac{\sum (R_i - \bar{R})(Q_i - \bar{Q})}{\sqrt{\sum (R_i - \bar{R})^2 \sum (Q_i - \bar{Q})^2}} = 1 - \frac{6D^*}{N^3 - N}$$

where $\bar{R} = \sum R_i / N$, $\bar{Q} = \sum Q_i / N$ and $D^* = \sum (R_i - Q_i)^2$.

In the presence of tied observation the formula will be modified and given by

$$r_s^* = \frac{12 \left[\sum R_i Q_i - \frac{1}{4} n(n+1)^2 \right]}{\left\{ [n(n^2 - 1) - 12t'] [n(n^2 - 1) - 12r'] \right\}^{1/2}}$$

Where $t' = \sum t_i(t_i - 1) / 12$ and $r' = \sum r_j(r_j - 1) / 12$

t_i and r_j - the size of the i^{th} and j^{th} group for the first and the second series of observation respectively.

CHAPTER FOUR

SUMMARY, RESULTS AND ANALYSIS OF THE DATA

4.1 Statistical Summary

In this chapter we apply the methods discussed in the previous Chapter Three to the data given in the Appendix.

The population and sample proportion of students in the two strata (Addis Ababa and Out-of-Addis Ababa) are given in Table 3. The table shows that the proportion of students from Addis Ababa is higher than the rest of the regions put together. The proportion shows a gradual decrease for students who were admitted from Addis Ababa.

Table 3: Proportion of students

Academic Year	Addis Ababa		Out of Addis Ababa	
	Popn. proportion	Sample proportion	Popn. proportion	Sample proportion
1995/96	0.44	0.42	0.56	0.58
1996/97	0.46	0.47	0.54	0.53
1997/98	0.39	0.37	0.61	0.63
1999/2000	0.31	0.33	0.69	0.67

We observe an increase in the rate of proportion of students from OAA. That is, the proportion of students for Addis Ababa which was 0.46 in 1996/97 decreased to 0.31 in 1999/2000; that shows a decrease of 15%. On the other hand the

proportion of OAA students increased by the same amount (15%). In order to find out the reason for this change further investigation should be conducted in the area, and we do not attempt to study the causes for this trend.

The mean GPAs and standard deviations for each semester are given in Table 4. The mean GPA for each academic year and for both AA and OAA do not seem to be different. Moreover, in most cases the variability in GPA/CGPA is quite similar. However, in all cases considered we noted that the mean GPA of the second semester is smaller than the mean GPA of the first semester. The variability in GPA in the second semester is larger than the variability in the first semester regardless of region.

Table 4: Summary of Mean GPA and Standard deviation

Academic Year		A.A region		Out of A.A region	
		Mean GPA	S.D.	Mean GPA	S.D.
1995/96	S(I)	2.45	0.61	2.41	0.61
	S(II)	2.23	0.60	2.15	0.62
	CGPA	2.34	0.57	2.28	0.58
1996/97	S(I)	2.16	0.41	2.13	0.45
	S(II)	2.10	0.58	2.00	0.45
	CGPA	2.13	0.46	2.07	0.41
1997/98	S(I)	2.34	0.58	2.30	0.58
	S(II)	2.21	0.72	2.12	0.59
	CGPA	2.28	0.62	2.21	0.55
1999/2000	S(I)	2.35	0.48	2.35	0.59
	S(II)	2.28	0.49	2.25	0.61
	CGPA	2.31	0.45	2.30	0.56

Table 5 : Result related to stratification

		Stratification	
		Mean GPA	standard error
1995/96	Semester I	2.4276	0.0356
	Semester II	2.1851	0.0357
	CGPA	2.3063	0.0336
1996/97	Semester I	2.1437	0.0247
	Semester II	2.0455	0.0293
	CGPA	2.0973	0.0248
1997/98	Semester I	2.3154	0.0399
	Semester II	2.1547	0.0443
	CGPA	2.2370	0.0398
1999/2000	Semester I	2.3500	0.0448
	Semester II	2.2592	0.0461
	CGPA	2.3031	0.0424

4.2 Test of Independence

Spearman's coefficient of rank correlation measures the degree of correspondence (or association) between rankings instead of actual variate values. Because we could obtain ESLCE GPAs for the 1997/98 academic year that also provided information on region where students took ESLCE. We are able to give results on association only for that particular year. Table 6 provides that information.

TABLE 6 : Spearman Coefficient Of Correlation

	n	$\sum R_i Q_i$	t'	r'	A	b1	b2	b3=b1*b2	sqrt(b3)	r _s *
Semester I - 0	112	409888.75	2880.00	7390	628281	1370256	1316136	1.80344E+12	1342923.397	0.468
Semester II - 0	112	397587.50	2093.50	7390	480666	1379694	1316136	1.81586E+12	1347540.331	0.357
CGPA - 0	112	406335.50	656.00	7390	585642	1396944	1316136	1.83857E+12	1355938.158	0.432
Semester I - 1	69	98571.75	456.00	1109.5	168561	322968	315126	1.01776E+11	319022.9051	0.528
Semester II - 1	69	97681.50	281.50	1109.5	157878	325062	315126	1.02435E+11	320055.4449	0.493
CGPA - 1	69	99094.50	105.00	1109.5	174834	327180	315126	1.03103E+11	321096.4414	0.544
Semester I	181	1728429.75	8923.50	25335	2754825	5822478	5625540	3.27546E+13	5723161.966	0.481
Semester II	181	1691970.00	6638.00	25335	2317308	5849904	5625540	3.29089E+13	5736625.223	0.404
CGPA	181	1724045.50	2260.50	25335	2702214	5902434	5625540	3.32044E+13	5762324.059	0.469

$$A = 12 * (\sum R_i Q_i - (1/4) * n * (n+1)^2)$$

$$b1 = n * (n^2 - 1) - 12 * (t')$$

$$b2 = n * (n^2 - 1) - 12 * (r')$$

0 - Out of Addis Ababa

1 - Addis Ababa

TABLE 7 : Test statistics – Spearman Coefficient of Correlation

	N	D*	sum_t_i	sum_r_j	Mean	Var	D**	P- Value
Semester I - 1	69	25081	5,472.00	13,314.00	55,393.50	41,575,005.71	-4.70	0.000
Semester II - 1	69	27180	3,378.00	13,314.00	55,568.00	41,844,562.01	-4.39	0.000
CGPA -1	69	24386.5	1,260.00	13,314.00	55,744.50	42,117,207.79	-4.83	.0.000
Semester I - 0	112	119152.5	34,560.00	88,680.00	238,646.00	451,312,124.83	-5.62	0.000
Semester I I- 0	112	144541.5	25,122.00	88,680.00	239,432.50	454,420,656.25	-4.45	.0.000
CGPA -0	112	128500.5	7,872.00	88,680.00	240,870.00	460,102,174.27	-5.24	0.000
Semester I	181	494864	107,082.00	304,020.00	1,004,671.50	5,054,719,581.50	-7.17	.0.000
Semester II	181	570069	79,656.00	304,020.00	1,006,957.00	5,078,529,158.67	-6.13	0.000
CGPA	181	510295.5	27,126.00	304,020.00	1,011,334.50	5,124,132,494.50	-7.00	0.000

$$\text{Sum}_{t_i} = \sum t_i(t_i^2 - 1) \quad \text{and} \quad \text{Sum}_{r_j} = \sum r_j(r_j^2 - 1)$$

Apparently for that particular academic year the ESLCE GPA seemed to have positive correlation with freshman GPA although the association is not very strong (see Table 6). Therefore the null hypothesis, that says there is no association between ESLCE GPA and Freshman GPA, will be rejected for all levels of significance α because for all cases the p-value turned out to be zero (see Table 7).

The analysis was conducted by grouping the GPAs into three categories: Addis Ababa region, out of Addis Ababa region and by disregarding regions and treating the GPAs as one set of data. The correlation is quite similar for the two regions, that means the association of ESLCE GPA and Freshman GPA will not be affected by regional background of students.

4.3 Wilcoxon Two Sample Test

As stated earlier this is a non-parametric test for the two-sample location problem; it indicates whether there is a difference in the performance between the two groups of students as measured by the median. Table 8 displays the calculated values of rank sum of Wilcoxon test statistic (W) and the large sample approximation of the test statistic (W^*). Since our sample size is very large, we used W^* . The relevant information is summarised (with the corresponding p-values) in Table 9. The p-values in all cases except for the second semester of 1995/96 and 1996/1997 are greater than the given level of significance α . Therefore, the null hypothesis that says there is no difference in location between the two groups of students will not be rejected at the level $\alpha = 0.1$ (that means the p-values are greater than 0.1), showing that the null

TABLE 8 : Wilcoxon Rank-Sum

	n	m	N	W_N	Sum	Mean	Var	W_N[*]
1995/1996 Semester I	92	124	216	10241.50	179526.00	9982.00	202619.62	0.5765
Semester II	92	124	216	10938.50	199926.00	9982.00	202202.01	2.1271
CGPA	92	124	216	10704.00	50208.00	9982.00	205266.87	1.5936
1996/1997 Semester I	115	125	240	14077.00	263946.00	13857.50	283185.62	0.4125
Semester II	115	125	240	15074.00	221238.00	13857.50	284077.54	2.2824
CGPA	115	125	240	14531.50	66996.00	13857.50	287298.76	1.2575
1997/1998 Semester I	69	112	181	6502.50	107082.00	6279.00	115091.34	0.6588
Semester II	69	112	181	6512.00	79656.00	6279.00	115633.46	0.6852
CGPA	69	112	181	6459.00	27126.00	6279.00	116671.81	0.5270
1999/2000 Semester I	43	91	134	2976.00	40806.00	2902.50	43274.64	0.3533
Semester II	43	91	134	2990.50	37956.00	2902.50	43326.78	0.4228
CGPA	43	91	134	2989.50	13854.00	2902.50	43767.77	0.4159

$$\text{Sum} = \sum t_j(t_j^2 - 1)$$

TABLE 9: Wilcoxon rank-sum test and levels of rejection

	W_N^*	P-value	$\alpha_1 = 0.01$	$\alpha_1 = 0.05$	$\alpha_1 = 0.1$	
1995/96 Semester I Semester II CGPA	0.5765	0.5680	√	√	√	√ = do not reject H_0 X = reject H_0
	2.1271	0.0332	√	X	X	
	1.5936	0.1118	√	√	√	
1996/97 Semester I Semester II CGPA	0.4125	0.6800	√	√	√	
	2.2824	0.0220	√	X	X	
	1.2575	0.2076	√	√	√	
1997/98 Semester I Semester II CGPA	0.6588	0.5080	√	√	√	
	0.6852	0.4960	√	√	√	
	0.5270	0.5800	√	√	√	
1999/2000 Semester I Semester II CGPA	0.3533	0.7200	√	√	√	
	0.4228	0.6600	√	√	√	
	0.4159	0.6600	√	√	√	

hypothesis of no difference in median will not be rejected for all α values less than 0.1. For the second semester of 1995/96 and 1996/97 the p-values are 0.0332 and 0.0220, respectively. Both values are greater than $\alpha=0.01$ but less than $\alpha=0.05$ and $\alpha=0.1$. Thus, this implies that the null hypothesis will not be rejected for $\alpha = 0.01$ but will be rejected for $\alpha_2 = 0.05$ and $\alpha_3 = 0.1$

4.4 Ansari-Bradley Test

The results of the analysis based on the Ansari-Bradley test are given in Table 10. This table shows that the calculated values of rank sum test statistics of the

Ansari-Bradley test (C) and the test statistics for large sample size (C^*). The values are the bases for testing the null hypothesis that there is no difference in scale against there is a difference in scale regarding GPA/CGPA between AA and OAA students.

The rule for rejection of the null hypothesis at three selected levels of significance are summarised in Table 11. We observe that the p-value for each calculated value of C^* is larger than the given level of significance except for the first semester GPA and CGPA of 1999/2000. The blank space given as (-) in the table indicates that the null hypothesis of no difference in median was not rejected earlier at the two levels 0.05 and 0.1 in the academic years 1995/96 and 1996/97 (see Table 9), and hence Ansari-Bradley cannot be applied. The null hypothesis will not be rejected for all values except for those semesters which have some location difference and for those semesters where the p-values are greater than the given level of significance α .

The p-value for the first semester GPA and CGPA of 1999/2000 Ansari-Bradley test statistics are 0.092 and 0.026 respectively. Both values are less than the level of significance 0.1 and p-value for the CGPA 0.0260 is still less than 0.05. Therefore we will reject the null hypothesis at these values.

TABLE 10 : Ansari-Bradley

	n	m	N	C_N	Sum	Mean	Var	C_N[*]
1995/1996 Semester I	92	124	216	4,997.73	837,273.31	5014.00	48073.59	-0.0742
Semester II	92	124	216	5,497.00	836,170.50	5014.00	47802.69	2.2091
CGPA	92	124	216	5,381.50	847,946.20	5014.00	50695.39	1.6322
1996/1997 Semester I	115	125	240	6,957.00	1,145,596.50	6957.50	66947.13	-0.0019
Semester II	115	125	240	6653.057	1,149,503.95	6957.50	67926.37	-1.1681
CGPA	115	125	240	6,627.76	1,161,046.47	6957.50	70819.05	-1.2391
1997/1998 Semester I	69	112	181	3,204.05	494,379.64	3156.85	27399.64	0.2852
Semester II	69	112	181	2,839.11	1,365,954.58	3156.85	234137.86	-0.6566
CGPA	69	112	181	3,001.64	3,478,212.06	3156.85	735166.89	-0.1810
1999/2000 Semester I	43	91	134	1,634.96	202,245.59	1462.00	10394.32	1.6964
Semester II	43	91	134	1,609.41	202,614.57	1462.00	10475.34	1.4403
CGPA	43	91	134	1,688.50	203,897.50	1462.00	10757.02	2.1838

$$\text{Sum} = \sum t_j r_j^2$$

TABLE 11: Ansari-Bradley test and levels of rejection

	C_N^*	P-value	$\alpha_1 = 0.01$	$\alpha_2 = 0.05$	$\alpha_3 = 0.1$
1995/96					
Semester I	-0.0742	0.9400	√	√	√
Semester II	2.2091	0.2720	√	–	–
CGPA	1.6322	0.1040	√	√	√
1996/97					
Semester I	-0.0019	0.9980	√	√	√
Semester II	-1.1681	0.2420	√	–	–
CGPA	-1.2391	0.2160	√	√	√
1997/98					
Semester I	0.2852	0.7960	√	√	√
Semester II	-0.6566	0.5120	√	√	√
CGPA	-0.1810	0.8560	√	√	√
1999/2000					
Semester I	1.6964	0.0920	√	√	X
Semester II	1.4403	0.1500	√	√	√
CGPA	2.1838	0.0260	√	X	X

4.5 Lepage Test

The test is more applicable where there is a location difference between the two groups of students. Therefore here we concentrated at the two levels of significance 0.05 and 0.1 in the academic years 1995/96 and 1996/97 (see Tables 9 and 11 above)

Since the sample size is large, the chi-square approximation of Lepage test with two degrees of freedom is applied. The value of Lepage test statistics (D) and the tabulated chi-square distribution with two degrees of freedom at different level of

significance are given in Table 12. The results show that there is a location and scale difference in the second semesters of the 1995/96 and 1996/97 academic years attributable both to location as well as scale differences.

TABLE 12: Lepage test (based on large sample approximation)

	W_N^*	C_N^*	D^{**}	$\alpha_1 = .01$	$\alpha_2 = .05$	$\alpha_3 = .1$
				9.210*	5.991*	4.605*
1995/96 Semester I	0.576	-0.074	0.338	√	√	√
Semester II	2.127	2.209	9.405	X	X	X
CGPA	1.594	1.632	5.204	√	√	X
1996/97 Semester I	0.412	-0.002	0.170	√	√	√
Semester II	2.282	-1.168	6.574	√	X	X
CGPA	1.258	-1.239	3.117	√	√	√
1998/99 Semester I	0.659	0.285	0.515	√	√	√
Semester II	0.685	-0.657	0.901	√	√	√
CGPA	0.527	-0.181	0.310	√	√	√
1999/00 Semester I	0.353	1.696	3.003	√	√	√
Semester II	0.423	1.440	2.253	√	√	√
CGPA	0.416	2.184	4.942	√	√	X

* Chi-square value at the indicated level of significance

CHAPTER FIVE

CONCLUSION

The statistical analysis indicated that Addis Ababa and Out-of-Addis Ababa region students who were admitted to the Faculty of Science, Addis Ababa University in the selected four academic years performed equally well at the freshman level except for the first semester GPA in 1995/96 and 1996/97 academic years. This empirical study cannot provide concrete reasons why the performance of the students in these two academic years indicates that there is no significant difference in median performance and in variability. But it might be due the similarity of ESLCE GPA on entrance to the faculty between the two groups of students. That is those students who entered from OAA in the Faculty of Science seem to be in a good potential similar to that of AA region students. The above general observation is in agreement with some earlier empirical studies on the same issue.

The observation based on the descriptive statistics given in this work that the mean GPA of the second semester is larger than the mean GPA of the first semester, and the similarity of the mean GPAs between the regions in the two semesters show that adaptation in the new milieu of student life (dormitory, cafeteria, library, lecture hall, etc.) could possibly not be regarded as a problem to the students in the Faculty of Science. This assertion is contrary to the traditionally held belief that achievement of students with countryside background is negatively affected problems that could arise from adaptation to the city life.

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APPENDIX

1995/96 - Students from Out of Addis Ababa Region

No.	Sem. I	Rank- W _N	Rank - C _N	Sem. II	Rank-W _N	Rank - C _N	CGPA	Rank-W _N	Rank - C _N
1	1.60	8.00	8.00	1.00	5.00	5.00	1.40	6.50	6.50
2	1.60	8.00	8.00	1.00	5.00	5.00	1.40	6.50	6.50
3	1.60	8.00	8.00	1.20	10.00	10.00	1.40	6.50	6.50
4	1.60	8.00	8.00	1.20	10.00	10.00	1.40	6.50	6.50
5	1.60	8.00	8.00	1.20	10.00	10.00	1.50	11.00	11.00
6	1.60	8.00	8.00	1.20	10.00	10.00	1.50	11.00	11.00
7	1.60	8.00	8.00	1.20	10.00	10.00	1.50	11.00	11.00
8	1.60	8.00	8.00	1.20	10.00	10.00	1.60	18.00	18.00
9	1.60	8.00	8.00	1.40	18.00	18.00	1.60	18.00	18.00
10	1.60	8.00	8.00	1.40	18.00	18.00	1.60	18.00	18.00
11	1.60	8.00	8.00	1.40	18.00	18.00	1.60	18.00	18.00
12	1.80	25.00	25.00	1.40	18.00	18.00	1.60	18.00	18.00
13	1.80	25.00	25.00	1.40	18.00	18.00	1.60	18.00	18.00
14	1.80	25.00	25.00	1.60	30.50	30.50	1.60	18.00	18.00
15	1.80	25.00	25.00	1.60	30.50	30.50	1.70	26.00	26.00
16	1.80	25.00	25.00	1.60	30.50	30.50	1.70	26.00	26.00
17	1.80	25.00	25.00	1.60	30.50	30.50	1.70	26.00	26.00
18	1.80	25.00	25.00	1.60	30.50	30.50	1.70	26.00	26.00
19	1.80	25.00	25.00	1.60	30.50	30.50	1.70	26.00	26.00
20	1.92	35.00	35.00	1.60	30.50	30.50	1.80	34.00	34.00
21	2.00	59.50	59.50	1.60	30.50	30.50	1.80	34.00	34.00
22	2.00	59.50	59.50	1.60	30.50	30.50	1.80	34.00	34.00
23	2.00	59.50	59.50	1.60	30.50	30.50	1.80	34.00	34.00
24	2.00	59.50	59.50	1.60	30.50	30.50	1.80	34.00	34.00
25	2.00	59.50	59.50	1.60	30.50	30.50	1.80	34.00	34.00
26	2.00	59.50	59.50	1.60	30.50	30.50	1.80	34.00	34.00
27	2.00	59.50	59.50	1.60	30.50	30.50	1.90	47.00	47.00
28	2.00	59.50	59.50	1.60	30.50	30.50	1.90	47.00	47.00
29	2.00	59.50	59.50	1.60	30.50	30.50	1.90	47.00	47.00
30	2.00	59.50	59.50	1.80	50.00	50.00	1.90	47.00	47.00
31	2.00	59.50	59.50	1.80	50.00	50.00	1.90	47.00	47.00
32	2.00	59.50	59.50	1.80	50.00	50.00	1.90	47.00	47.00
33	2.00	59.50	59.50	1.80	50.00	50.00	1.90	47.00	47.00
34	2.00	59.50	59.50	1.80	50.00	50.00	1.90	47.00	47.00
35	2.00	59.50	59.50	1.80	50.00	50.00	1.90	47.00	47.00
36	2.00	59.50	59.50	1.80	50.00	50.00	1.90	47.00	47.00
37	2.00	59.50	59.50	1.80	50.00	50.00	1.90	47.00	47.00
38	2.00	59.50	59.50	1.80	50.00	50.00	1.90	47.00	47.00
39	2.00	59.50	59.50	1.80	50.00	50.00	1.90	47.00	47.00
40	2.00	59.50	59.50	1.80	50.00	50.00	2.00	67.50	67.50
41	2.00	59.50	59.50	1.80	50.00	50.00	2.00	67.50	67.50
42	2.00	59.50	59.50	1.80	50.00	50.00	2.00	67.50	67.50
43	2.00	59.50	59.50	1.80	50.00	50.00	2.00	67.50	67.50
44	2.00	59.50	59.50	1.80	50.00	50.00	2.00	67.50	67.50
45	2.00	59.50	59.50	1.80	50.00	50.00	2.00	67.50	67.50
46	2.00	59.50	59.50	1.80	50.00	50.00	2.00	67.50	67.50
47	2.00	59.50	59.50	1.88	62.00	62.00	2.00	67.50	67.50
48	2.00	59.50	59.50	2.00	82.50	82.50	2.00	67.50	67.50
49	2.00	59.50	59.50	2.00	82.50	82.50	2.00	67.50	67.50

50	2.20	99.00	97.84	2.00	82.50	82.50	2.00	67.50	67.50
51	2.20	99.00	97.84	2.00	82.50	82.50	2.00	67.50	67.50
52	2.20	99.00	97.84	2.00	82.50	82.50	2.00	67.50	67.50
53	2.20	99.00	97.84	2.00	82.50	82.50	2.00	67.50	67.50
54	2.20	99.00	97.84	2.00	82.50	82.50	2.00	67.50	67.50
55	2.20	99.00	97.84	2.00	82.50	82.50	2.10	89.50	89.50
56	2.20	99.00	97.84	2.00	82.50	82.50	2.10	89.50	89.50
57	2.20	99.00	97.84	2.00	82.50	82.50	2.10	89.50	89.50
58	2.20	99.00	97.84	2.00	82.50	82.50	2.10	89.50	89.50
59	2.20	99.00	97.84	2.00	82.50	82.50	2.10	89.50	89.50
60	2.20	99.00	97.84	2.00	82.50	82.50	2.10	89.50	89.50
61	2.20	99.00	97.84	2.00	82.50	82.50	2.10	89.50	89.50
62	2.20	99.00	97.84	2.00	82.50	82.50	2.10	89.50	89.50
63	2.20	99.00	97.84	2.00	82.50	82.50	2.10	89.50	89.50
64	2.20	99.00	97.84	2.00	82.50	82.50	2.10	89.50	89.50
65	2.20	99.00	97.84	2.00	82.50	82.50	2.20	110.50	102.82
66	2.20	99.00	97.84	2.00	82.50	82.50	2.20	110.50	102.82
67	2.20	99.00	97.84	2.00	82.50	82.50	2.20	110.50	102.82
68	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
69	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
70	2.40	126.00	91.00	2.20	126.50	89.75	2.20	110.50	102.82
71	2.40	126.00	91.00	2.20	126.50	89.75	2.20	110.50	102.82
72	2.40	126.00	91.00	2.20	126.50	89.75	2.20	110.50	102.82
73	2.40	126.00	91.00	2.20	126.50	89.75	2.20	110.50	102.82
74	2.40	126.00	91.00	2.20	126.50	89.75	2.20	110.50	102.82
75	2.40	126.00	91.00	2.20	126.50	89.75	2.20	110.50	102.82
76	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
77	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
78	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
79	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
80	2.60	149.00	68.00	2.20	126.50	89.75	2.30	131.00	86.00
81	2.60	149.00	68.00	2.20	126.50	89.75	2.30	131.00	86.00
82	2.60	149.00	68.00	2.20	126.50	89.75	2.40	148.00	69.00
83	2.60	149.00	68.00	2.20	126.50	89.75	2.40	148.00	69.00
84	2.60	149.00	68.00	2.20	126.50	89.75	2.40	148.00	69.00
85	2.60	149.00	68.00	2.20	126.50	89.75	2.40	148.00	69.00
86	2.60	149.00	68.00	2.20	126.50	89.75	2.40	148.00	69.00
87	2.60	149.00	68.00	2.20	126.50	89.75	2.40	148.00	69.00
88	2.60	149.00	68.00	2.20	126.50	89.75	2.50	157.00	60.00
89	2.60	149.00	68.00	2.20	126.50	89.75	2.50	157.00	60.00
90	2.60	149.00	68.00	2.40	158.50	58.50	2.50	157.00	60.00
91	2.60	149.00	68.00	2.40	158.50	58.50	2.60	162.50	54.50
92	2.60	149.00	68.00	2.40	158.50	58.50	2.60	162.50	54.50
93	2.80	167.50	49.50	2.40	158.50	58.50	2.60	162.50	54.50
94	2.80	167.50	49.50	2.40	158.50	58.50	2.60	162.50	54.50
95	2.80	167.50	49.50	2.40	158.50	58.50	2.60	162.50	54.50
96	2.80	167.50	49.50	2.40	158.50	58.50	2.70	169.50	47.50
97	2.80	167.50	49.50	2.60	172.50	44.50	2.70	169.50	47.50
98	2.80	167.50	49.50	2.60	172.50	44.50	2.70	169.50	47.50
99	2.80	167.50	49.50	2.60	172.50	44.50	2.70	169.50	47.50
100	2.80	167.50	49.50	2.60	172.50	44.50	2.70	169.50	47.50
101	3.00	178.50	38.50	2.60	172.50	44.50	2.70	169.50	47.50
102	3.00	178.50	38.50	2.80	183.50	33.50	2.70	169.50	47.50
103	3.00	178.50	38.50	2.80	183.50	33.50	2.80	177.50	39.50
104	3.00	178.50	38.50	2.80	183.50	33.50	2.80	177.50	39.50

105	3.00	178.50	38.50	2.80	183.50	33.50	2.80	177.50	39.50
106	3.00	178.50	38.50	2.80	183.50	33.50	2.80	177.50	39.50
107	3.00	178.50	38.50	2.80	183.50	33.50	2.90	183.00	34.00
108	3.00	178.50	38.50	3.00	193.00	24.00	2.90	183.00	34.00
109	3.20	188.00	29.00	3.00	193.00	24.00	3.00	187.00	30.00
110	3.20	188.00	29.00	3.00	193.00	24.00	3.00	187.00	30.00
111	3.20	188.00	29.00	3.00	193.00	24.00	3.10	192.00	25.00
112	3.20	188.00	29.00	3.00	193.00	24.00	3.10	192.00	25.00
113	3.20	188.00	29.00	3.00	193.00	24.00	3.20	197.50	19.50
114	3.40	196.50	20.50	3.20	201.00	16.00	3.20	197.50	19.50
115	3.40	196.50	20.50	3.20	201.00	16.00	3.20	197.50	19.50
116	3.60	205.00	12.00	3.20	201.00	16.00	3.30	201.50	15.50
117	3.60	205.00	12.00	3.20	201.00	16.00	3.40	204.00	13.00
118	3.60	205.00	12.00	3.40	206.50	10.50	3.40	204.00	13.00
119	3.60	205.00	12.00	3.40	206.50	10.50	3.50	207.00	10.00
120	3.60	205.00	12.00	3.40	206.50	10.50	3.60	210.00	7.00
121	3.60	205.00	12.00	3.60	211.50	5.50	3.60	210.00	7.00
122	3.80	211.50	5.50	3.60	211.50	5.50	3.60	210.00	7.00
123	3.80	211.50	5.50	3.60	211.50	5.50	3.70	213.00	4.00
124	4.00	215.00	2.00	4.00	215.50	1.50	3.80	215.00	2.00
Sum		13194.50	6774.27		12497.50	6275.00		12732.00	6390.50

1995/96 - Students from Addis Ababa Region

No.	Sem. I	Rank- W _N	Rank - C _N	Sem. II	Rank-W _N	Rank - C _N	CGPA	Rank-W _N	Rank - C _N
1	1.60	8.00	8.00	0.40	1.00	1.00	1.10	1.50	1.50
2	1.60	8.00	8.00	0.60	2.00	2.00	1.10	1.50	1.50
3	1.60	8.00	8.00	0.80	3.00	3.00	1.30	3.50	3.50
4	1.60	8.00	8.00	1.00	5.00	5.00	1.30	3.50	3.50
5	1.80	25.00	25.00	1.20	10.00	10.00	1.50	11.00	11.00
6	1.80	25.00	25.00	1.40	18.00	18.00	1.50	11.00	11.00
7	1.80	25.00	25.00	1.40	18.00	18.00	1.60	18.00	18.00
8	1.80	25.00	25.00	1.40	18.00	18.00	1.60	18.00	18.00
9	1.80	25.00	25.00	1.40	18.00	18.00	1.70	26.00	26.00
10	1.80	25.00	25.00	1.80	50.00	50.00	1.70	26.00	26.00
11	1.80	25.00	25.00	1.80	50.00	50.00	1.80	34.00	34.00
12	1.80	25.00	25.00	1.80	50.00	50.00	1.80	34.00	34.00
13	1.80	25.00	25.00	1.80	50.00	50.00	1.90	47.00	47.00
14	1.80	25.00	25.00	1.80	50.00	50.00	1.90	47.00	47.00
15	1.80	25.00	25.00	1.80	50.00	50.00	1.90	47.00	47.00
16	2.00	59.50	59.50	2.00	82.50	82.50	1.90	47.00	47.00
17	2.00	59.50	59.50	2.00	82.50	82.50	2.00	67.50	67.50
18	2.00	59.50	59.50	2.00	82.50	82.50	2.00	67.50	67.50
19	2.00	59.50	59.50	2.00	82.50	82.50	2.00	67.50	67.50
20	2.00	59.50	59.50	2.00	82.50	82.50	2.00	67.50	67.50
21	2.00	59.50	59.50	2.00	82.50	82.50	2.00	67.50	67.50
22	2.00	59.50	59.50	2.00	82.50	82.50	2.00	67.50	67.50
23	2.00	59.50	59.50	2.00	82.50	82.50	2.00	67.50	67.50
24	2.00	59.50	59.50	2.00	82.50	82.50	2.00	67.50	67.50
25	2.00	59.50	59.50	2.00	82.50	82.50	2.00	67.50	67.50
26	2.00	59.50	59.50	2.00	82.50	82.50	2.10	89.50	89.50
27	2.00	59.50	59.50	2.00	82.50	82.50	2.10	89.50	89.50
28	2.00	59.50	59.50	2.00	82.50	82.50	2.10	89.50	89.50
29	2.00	59.50	59.50	2.00	82.50	82.50	2.10	89.50	89.50

30	2.00	59.50	59.50	2.00	82.50	82.50	2.10	89.50	89.50
31	2.00	59.50	59.50	2.00	82.50	82.50	2.10	89.50	89.50
32	2.00	59.50	59.50	2.00	82.50	82.50	2.10	89.50	89.50
33	2.00	59.50	59.50	2.00	82.50	82.50	2.10	89.50	89.50
34	2.00	59.50	59.50	2.00	82.50	82.50	2.10	89.50	89.50
35	2.20	99.00	97.84	2.00	82.50	82.50	2.10	89.50	89.50
36	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
37	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
38	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
39	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
40	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
41	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
42	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
43	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
44	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
45	2.20	99.00	97.84	2.20	126.50	89.75	2.20	110.50	102.82
46	2.40	126.00	91.00	2.20	126.50	89.75	2.20	110.50	102.82
47	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
48	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
49	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
50	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
51	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
52	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
53	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
54	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
55	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
56	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
57	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
58	2.40	126.00	91.00	2.20	126.50	89.75	2.30	131.00	86.00
59	2.60	149.00	68.00	2.20	126.50	89.75	2.30	131.00	86.00
60	2.60	149.00	68.00	2.20	126.50	89.75	2.31	141.00	76.00
61	2.60	149.00	68.00	2.20	126.50	89.75	2.40	148.00	69.00
62	2.60	149.00	68.00	2.40	158.50	58.50	2.40	148.00	69.00
63	2.60	149.00	68.00	2.40	158.50	58.50	2.40	148.00	69.00
64	2.60	149.00	68.00	2.40	158.50	58.50	2.40	148.00	69.00
65	2.60	149.00	68.00	2.40	158.50	58.50	2.40	148.00	69.00
66	2.60	149.00	68.00	2.40	158.50	58.50	2.40	148.00	69.00
67	2.60	149.00	68.00	2.40	158.50	58.50	2.40	148.00	69.00
68	2.60	149.00	68.00	2.40	158.50	58.50	2.50	157.00	60.00
69	2.62	161.00	56.00	2.40	158.50	58.50	2.50	157.00	60.00
70	2.80	167.50	49.50	2.40	158.50	58.50	2.60	162.50	54.50
71	2.80	167.50	49.50	2.60	172.50	44.50	2.70	169.50	47.50
72	2.80	167.50	49.50	2.60	172.50	44.50	2.80	177.50	39.50
73	2.80	167.50	49.50	2.60	172.50	44.50	2.80	177.50	39.50
74	3.00	178.50	38.50	2.60	172.50	44.50	2.80	177.50	39.50
75	3.00	178.50	38.50	2.60	172.50	44.50	2.80	177.50	39.50
76	3.20	188.00	29.00	2.60	172.50	44.50	2.90	183.00	34.00
77	3.20	188.00	29.00	2.60	172.50	44.50	3.00	187.00	30.00
78	3.20	188.00	29.00	2.80	183.50	33.50	3.00	187.00	30.00
79	3.20	188.00	29.00	2.80	183.50	33.50	3.00	187.00	30.00
80	3.40	196.50	20.50	2.80	183.50	33.50	3.10	192.00	25.00
81	3.40	196.50	20.50	2.80	183.50	33.50	3.10	192.00	25.00
82	3.40	196.50	20.50	3.00	193.00	24.00	3.10	192.00	25.00
83	3.40	196.50	20.50	3.00	193.00	24.00	3.20	197.50	19.50
84	3.40	196.50	20.50	3.00	193.00	24.00	3.20	197.50	19.50

85	3.40	196.50	20.50	3.20	201.00	16.00	3.20	197.50	19.50
86	3.60	205.00	12.00	3.20	201.00	16.00	3.30	201.50	15.50
87	3.60	205.00	12.00	3.20	201.00	16.00	3.40	204.00	13.00
88	3.60	205.00	12.00	3.40	206.50	10.50	3.50	207.00	10.00
89	3.80	211.50	5.50	3.60	211.50	5.50	3.50	207.00	10.00
90	3.80	211.50	5.50	3.60	211.50	5.50	3.70	213.00	4.00
91	4.00	215.00	2.00	3.60	211.50	5.50	3.70	213.00	4.00
92	4.00	215.00	2.00	4.00	215.50	1.50	4.00	216.00	1.00
Sum		10241.50	4997.73		10938.50	5497.00		10704.00	5381.50

1996/97 - Students from Out of Addis Ababa Region

No.	Sem. I	Rank- W _N	Rank - C _N	Sem. II	Rank-W _N	Rank - C _N	CGPA	Rank-W _N	Rank - C _N
1	2.60	183.00	58.00	2.80	205.50	35.50	2.70	198.50	42.50
2	2.20	128.50	110.50	2.60	189.50	51.50	2.40	169.50	71.50
3	3.20	224.00	17.00	3.20	228.00	13.00	3.20	228.00	13.00
4	2.40	159.00	82.00	2.20	139.00	102.00	2.30	152.00	89.00
5	3.20	224.00	17.00	3.40	234.00	7.00	3.30	231.00	10.00
6	2.20	128.50	110.50	2.60	189.50	51.50	2.40	169.50	71.50
7	2.40	159.00	82.00	1.80	59.50	59.50	2.10	115.00	114.16
8	4.00	238.50	2.50	1.80	59.50	59.50	2.90	211.00	30.00
9	3.00	213.50	27.50	2.20	139.00	102.00	2.60	191.50	49.50
10	3.00	213.50	27.50	3.00	218.50	22.50	3.00	219.00	22.00
11	2.00	85.50	85.50	2.20	139.00	102.00	2.10	115.00	114.16
12	3.00	213.50	27.50	2.80	205.50	35.50	2.90	211.00	30.00
13	3.40	231.00	10.00	3.20	228.00	13.00	3.30	231.00	10.00
14	2.80	200.00	41.00	3.20	228.00	13.00	3.00	219.00	22.00
15	2.20	128.50	110.50	1.80	59.50	59.50	2.00	90.00	90.00
16	2.80	200.00	41.00	2.00	100.00	99.32	2.40	169.50	71.50
17	2.40	159.00	82.00	2.60	189.50	51.50	2.50	181.50	59.50
18	2.40	159.00	82.00	2.20	139.00	102.00	2.30	152.00	89.00
19	3.00	213.50	27.50	3.20	228.00	13.00	3.10	224.50	16.50
20	2.00	85.50	85.50	1.60	34.50	34.50	1.80	49.50	49.50
21	2.20	128.50	110.50	2.00	100.00	99.32	2.10	115.00	114.16
22	2.60	183.00	58.00	2.40	167.50	73.50	2.50	181.50	59.50
23	2.40	159.00	82.00	2.20	139.00	102.00	2.30	152.00	89.00
24	2.00	85.50	85.50	1.80	59.50	59.50	1.90	67.00	67.00
25	2.60	183.00	58.00	2.00	100.00	99.32	2.30	152.00	89.00
26	2.20	128.50	110.50	2.40	167.50	73.50	2.30	152.00	89.00
27	1.80	43.00	43.00	1.80	59.50	59.50	1.80	49.50	49.50
28	2.80	200.00	41.00	2.40	167.50	73.50	2.60	191.50	49.50
29	3.20	224.00	17.00	2.40	167.50	73.50	2.80	203.50	37.50
30	1.80	43.00	43.00	1.40	20.50	20.50	1.60	21.50	21.50
31	2.40	159.00	82.00	2.00	100.00	99.32	2.20	133.50	107.50
32	2.40	159.00	82.00	1.80	59.50	59.50	2.10	115.00	114.16
33	3.20	224.00	17.00	2.60	189.50	51.50	2.90	211.00	30.00
34	2.40	159.00	82.00	2.00	100.00	99.32	2.20	133.50	107.50
35	2.00	85.50	85.50	1.80	59.50	59.50	1.90	67.00	67.00
36	2.60	183.00	58.00	2.20	139.00	102.00	2.40	169.50	71.50
37	3.00	213.50	27.50	1.80	59.50	59.50	2.40	169.50	71.50
38	2.60	183.00	58.00	2.60	189.50	51.50	2.60	191.50	49.50
39	2.80	200.00	41.00	2.40	167.50	73.50	2.60	191.50	49.50
40	1.80	43.00	43.00	1.80	59.50	59.50	1.80	49.50	49.50
41	2.60	183.00	58.00	2.00	100.00	99.32	2.30	152.00	89.00
42	2.60	183.00	58.00	2.00	100.00	99.32	2.30	152.00	89.00
43	1.60	16.00	16.00	1.40	20.50	20.50	1.50	11.00	11.00
44	2.40	159.00	82.00	2.00	100.00	99.32	2.20	133.50	107.50
45	2.00	85.50	85.50	1.60	34.50	34.50	1.80	49.50	49.50
46	3.20	224.00	17.00	3.00	218.50	22.50	3.10	224.50	16.50
47	1.80	43.00	43.00	1.80	59.50	59.50	1.80	49.50	49.50
48	2.00	85.50	85.50	1.60	34.50	34.50	1.80	49.50	49.50
49	2.60	183.00	58.00	2.60	189.50	51.50	2.60	191.50	49.50
50	2.80	200.00	41.00	2.80	205.50	35.50	2.80	203.50	37.50

51	2.60	183.00	58.00	2.00	100.00	99.32	2.30	152.00	89.00
52	2.20	128.50	110.50	2.40	167.50	73.50	2.30	152.00	89.00
53	2.40	159.00	82.00	2.60	189.50	51.50	2.50	181.50	59.50
54	3.00	213.50	27.50	3.00	218.50	22.50	3.00	219.00	22.00
55	3.00	213.50	27.50	3.00	218.50	22.50	3.00	219.00	22.00
56	1.60	16.00	16.00	2.20	139.00	102.00	1.90	67.00	67.00
57	2.20	128.50	110.50	2.40	167.50	73.50	2.30	152.00	89.00
58	3.00	213.50	27.50	2.80	205.50	35.50	2.90	211.00	30.00
59	1.80	43.00	43.00	2.00	100.00	99.32	1.90	67.00	67.00
60	2.20	128.50	110.50	1.80	59.50	59.50	2.00	90.00	90.00
61	3.20	224.00	17.00	3.00	218.50	22.50	3.10	224.50	16.50
62	3.40	231.00	10.00	3.00	218.50	22.50	3.20	228.00	13.00
63	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
64	2.00	85.50	85.50	1.40	20.50	20.50	1.70	34.50	34.50
65	2.20	128.50	110.50	1.80	59.50	59.50	2.00	90.00	90.00
66	2.00	85.50	85.50	1.20	11.50	11.50	1.60	21.50	21.50
67	2.20	128.50	110.50	2.40	167.50	73.50	2.30	152.00	89.00
68	1.80	43.00	43.00	2.20	139.00	102.00	2.00	90.00	90.00
69	2.20	128.50	110.50	1.80	59.50	59.50	2.00	90.00	90.00
70	1.80	43.00	43.00	1.40	20.50	20.50	1.60	21.50	21.50
71	1.60	16.00	16.00	2.00	100.00	99.32	1.80	49.50	49.50
72	1.80	43.00	43.00	2.00	100.00	99.32	1.90	67.00	67.00
73	1.60	16.00	16.00	1.20	11.50	11.50	1.40	5.00	5.00
74	2.20	128.50	110.50	2.00	100.00	99.32	2.10	115.00	114.16
75	2.20	128.50	110.50	1.60	34.50	34.50	1.90	67.00	67.00
76	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
77	2.40	159.00	82.00	1.80	59.50	59.50	2.10	115.00	114.16
78	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
79	1.60	16.00	16.00	1.60	34.50	34.50	1.60	21.50	21.50
80	1.60	16.00	16.00	1.80	59.50	59.50	1.70	34.50	34.50
81	1.80	43.00	43.00	2.40	167.50	73.50	2.10	115.00	114.16
82	1.80	43.00	43.00	2.40	167.50	73.50	2.10	115.00	114.16
83	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
84	2.20	128.50	110.50	2.20	139.00	102.00	2.20	133.50	107.50
85	2.80	200.00	41.00	2.80	205.50	35.50	2.80	203.50	37.50
86	2.00	85.50	85.50	1.40	20.50	20.50	1.70	34.50	34.50
87	3.20	224.00	17.00	2.80	205.50	35.50	3.00	219.00	22.00
88	2.80	200.00	41.00	2.00	100.00	99.32	2.40	169.50	71.50
89	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
90	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
91	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
92	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
93	1.60	16.00	16.00	1.60	34.50	34.50	1.60	21.50	21.50
94	2.20	128.50	110.50	2.00	100.00	99.32	2.10	115.00	114.16
95	2.20	128.50	110.50	1.80	59.50	59.50	2.00	90.00	90.00
96	2.20	128.50	110.50	1.80	59.50	59.50	2.00	90.00	90.00
97	1.75	27.00	27.00	2.25	153.00	88.00	2.00	90.00	90.00
98	1.60	16.00	16.00	1.40	20.50	20.50	1.50	11.00	11.00
99	2.20	128.50	110.50	2.00	100.00	99.32	2.10	115.00	114.16
100	1.80	43.00	43.00	1.40	20.50	20.50	1.60	21.50	21.50
101	2.60	183.00	58.00	1.60	34.50	34.50	2.10	115.00	114.16
102	1.80	43.00	43.00	2.00	100.00	99.32	1.90	67.00	67.00
103	2.00	85.50	85.50	1.80	59.50	59.50	1.90	67.00	67.00
104	1.80	43.00	43.00	1.60	34.50	34.50	1.70	34.50	34.50
105	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00

106	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
107	2.20	128.50	110.50	2.40	167.50	73.50	2.30	152.00	89.00
108	2.20	128.50	110.50	2.20	139.00	102.00	2.20	133.50	107.50
109	1.60	16.00	16.00	1.20	11.50	11.50	1.40	5.00	5.00
110	1.80	43.00	43.00	2.60	189.50	51.50	2.20	133.50	107.50
111	2.20	128.50	110.50	2.20	139.00	102.00	2.20	133.50	107.50
112	1.59	5.50	5.50	1.75	44.50	44.50	1.67	28.50	28.50
113	1.59	5.50	5.50	1.75	44.50	44.50	1.67	28.50	28.50
114	1.60	16.00	16.00	1.60	34.50	34.50	1.60	21.50	21.50
115	1.60	16.00	16.00	1.80	59.50	59.50	1.70	34.50	34.50
116	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
117	1.60	16.00	16.00	1.40	20.50	20.50	1.50	11.00	11.00
118	1.53	1.50	1.50	2.25	153.00	88.00	1.89	58.50	58.50
119	2.00	85.50	85.50	1.60	34.50	34.50	1.80	49.50	49.50
120	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
121	2.00	85.50	85.50	1.60	34.50	34.50	1.80	49.50	49.50
122	2.00	85.50	85.50	1.00	5.50	5.50	1.50	11.00	11.00
123	1.80	43.00	43.00	1.80	59.50	59.50	1.80	49.50	49.50
124	1.60	16.00	16.00	2.00	100.00	99.32	1.80	49.50	49.50
125	2.40	159.00	82.00	2.00	100.00	99.32	2.20	133.50	107.50
Sum		14843.00	7563.00		13846.00	7866.94		14388.50	7892.24

1996/97- Students from Addis Ababa Region

No.	Sem. I	Rank- W _N	Rank - C _N	Sem. II	Rank-W _N	Rank - C _N	CGPA	Rank-W _N	Rank - C _N
1	3.40	231.00	10.00	3.80	239.00	2.00	3.60	237.00	4.00
2	1.60	16.00	16.00	2.00	100.00	99.32	1.80	49.50	49.50
3	2.80	200.00	41.00	3.00	218.50	22.50	2.90	211.00	30.00
4	3.00	213.50	27.50	3.00	218.50	22.50	3.00	219.00	22.00
5	3.60	234.50	6.50	3.20	228.00	13.00	3.40	233.50	7.50
6	4.00	238.50	2.50	3.60	237.00	4.00	3.80	238.50	2.50
7	3.80	236.00	5.00	3.20	228.00	13.00	3.50	235.50	5.50
8	2.80	200.00	41.00	2.20	139.00	102.00	2.50	181.50	59.50
9	2.40	159.00	82.00	2.40	167.50	73.50	2.40	169.50	71.50
10	4.00	238.50	2.50	4.00	240.00	1.00	4.00	240.00	1.00
11	3.60	234.50	6.50	3.40	234.00	7.00	3.50	235.50	5.50
12	2.80	200.00	41.00	2.60	189.50	51.50	2.70	198.50	42.50
13	3.20	224.00	17.00	2.80	205.50	35.50	3.00	219.00	22.00
14	4.00	238.50	2.50	3.60	237.00	4.00	3.80	238.50	2.50
15	2.20	128.50	110.50	2.80	205.50	35.50	2.50	181.50	59.50
16	2.80	200.00	41.00	3.00	218.50	22.50	2.90	211.00	30.00
17	2.00	85.50	85.50	1.60	34.50	34.50	1.80	49.50	49.50
18	2.40	159.00	82.00	2.40	167.50	73.50	2.40	169.50	71.50
19	2.60	183.00	58.00	2.20	139.00	102.00	2.40	169.50	71.50
20	2.80	200.00	41.00	2.80	205.50	35.50	2.80	203.50	37.50
21	2.60	183.00	58.00	2.80	205.50	35.50	2.70	198.50	42.50
22	2.40	159.00	82.00	2.20	139.00	102.00	2.30	152.00	89.00
23	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
24	2.60	183.00	58.00	2.40	167.50	73.50	2.50	181.50	59.50
25	2.80	200.00	41.00	2.20	139.00	102.00	2.50	181.50	59.50
26	2.80	200.00	41.00	2.80	205.50	35.50	2.80	203.50	37.50
27	1.72	26.00	26.00	2.50	181.00	60.00	2.11	125.00	116.00
28	2.40	159.00	82.00	2.20	139.00	102.00	2.30	152.00	89.00
29	2.20	128.50	110.50	2.80	205.50	35.50	2.50	181.50	59.50

30	2.40	159.00	82.00	2.00	100.00	99.32	2.20	133.50	107.50
31	2.20	128.50	110.50	2.20	139.00	102.00	2.20	133.50	107.50
32	2.60	183.00	58.00	2.60	189.50	51.50	2.60	191.50	49.50
33	2.40	159.00	82.00	2.20	139.00	102.00	2.30	152.00	89.00
34	2.60	183.00	58.00	2.20	139.00	102.00	2.40	169.50	71.50
35	3.40	231.00	10.00	3.20	228.00	13.00	3.30	231.00	10.00
36	3.00	213.50	27.50	3.20	228.00	13.00	3.10	224.50	16.50
37	2.00	85.50	85.50	2.20	139.00	102.00	2.10	115.00	114.16
38	2.40	159.00	82.00	3.20	228.00	13.00	2.80	203.50	37.50
39	3.20	224.00	17.00	3.60	237.00	4.00	3.40	233.50	7.50
40	1.80	43.00	43.00	1.60	34.50	34.50	1.70	34.50	34.50
41	2.20	128.50	110.50	1.80	59.50	59.50	2.00	90.00	90.00
42	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
43	2.00	85.50	85.50	2.20	139.00	102.00	2.10	115.00	114.16
44	2.60	183.00	58.00	2.80	205.50	35.50	2.70	198.50	42.50
45	2.60	183.00	58.00	2.40	167.50	73.50	2.50	181.50	59.50
46	1.80	43.00	43.00	1.40	20.50	20.50	1.60	21.50	21.50
47	1.60	16.00	16.00	0.80	2.00	2.00	1.20	1.50	1.50
48	2.20	128.50	110.50	2.60	189.50	51.50	2.40	169.50	71.50
49	3.40	231.00	10.00	2.40	167.50	73.50	2.90	211.00	30.00
50	2.20	128.50	110.50	2.00	100.00	99.32	2.10	115.00	114.16
51	2.00	85.50	85.50	2.60	189.50	51.50	2.30	152.00	89.00
52	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
53	1.80	43.00	43.00	0.80	2.00	2.00	1.30	3.00	3.00
54	1.80	43.00	43.00	1.60	34.50	34.50	1.70	34.50	34.50
55	1.80	43.00	43.00	1.20	11.50	11.50	1.50	11.00	11.00
56	1.53	1.50	1.50	2.25	153.00	88.00	1.89	58.50	58.50
57	1.80	43.00	43.00	1.60	34.50	34.50	1.70	34.50	34.50
58	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
59	2.20	128.50	110.50	2.40	167.50	73.50	2.30	152.00	89.00
60	2.40	159.00	82.00	2.40	167.50	73.50	2.40	169.50	71.50
61	2.40	159.00	82.00	2.60	189.50	51.50	2.50	181.50	59.50
62	2.20	128.50	110.50	2.40	167.50	73.50	2.30	152.00	89.00
63	2.40	159.00	82.00	2.80	205.50	35.50	2.60	191.50	49.50
64	3.00	213.50	27.50	2.80	205.50	35.50	2.90	211.00	30.00
65	1.60	16.00	16.00	1.60	34.50	34.50	1.60	21.50	21.50
66	2.40	159.00	82.00	2.40	167.50	73.50	2.40	169.50	71.50
67	1.80	43.00	43.00	2.00	100.00	99.32	1.90	67.00	67.00
68	2.00	85.50	85.50	2.20	139.00	102.00	2.10	115.00	114.16
69	2.40	159.00	82.00	2.00	100.00	99.32	2.20	133.50	107.50
70	1.80	43.00	43.00	1.60	34.50	34.50	1.70	34.50	34.50
71	2.00	85.50	85.50	1.80	59.50	59.50	1.90	67.00	67.00
72	2.40	159.00	82.00	2.00	100.00	99.32	2.20	133.50	107.50
73	2.00	85.50	85.50	1.80	59.50	59.50	1.90	67.00	67.00
74	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
75	2.40	159.00	82.00	2.00	100.00	99.32	2.20	133.50	107.50
76	2.00	85.50	85.50	2.40	167.50	73.50	2.20	133.50	107.50
77	3.00	213.50	27.50	3.40	234.00	7.00	3.20	228.00	13.00
78	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
79	1.60	16.00	16.00	0.80	2.00	2.00	1.20	1.50	1.50
80	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
81	1.80	43.00	43.00	2.40	167.50	73.50	2.10	115.00	114.16
82	1.80	43.00	43.00	1.40	20.50	20.50	1.60	21.50	21.50
83	2.40	159.00	82.00	2.20	139.00	102.00	2.30	152.00	89.00
84	1.80	43.00	43.00	1.00	5.50	5.50	1.40	5.00	5.00

85	2.60	183.00	58.00	2.60	189.50	51.50	2.60	191.50	49.50
86	2.00	85.50	85.50	1.20	11.50	11.50	1.60	21.50	21.50
87	2.00	85.50	85.50	2.40	167.50	73.50	2.20	133.50	107.50
88	1.80	43.00	43.00	1.80	59.50	59.50	1.80	49.50	49.50
89	2.20	128.50	110.50	2.00	100.00	99.32	2.10	115.00	114.16
90	1.60	16.00	16.00	2.00	100.00	99.32	1.80	49.50	49.50
91	2.20	128.50	110.50	2.60	189.50	51.50	2.40	169.50	71.50
92	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
93	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
94	2.00	85.50	85.50	1.80	59.50	59.50	1.90	67.00	67.00
95	1.80	43.00	43.00	2.40	167.50	73.50	2.10	115.00	114.16
96	2.40	159.00	82.00	2.80	205.50	35.50	2.60	191.50	49.50
97	2.60	183.00	58.00	2.60	189.50	51.50	2.60	191.50	49.50
98	1.80	43.00	43.00	1.20	11.50	11.50	1.50	11.00	11.00
99	2.00	85.50	85.50	1.60	34.50	34.50	1.80	49.50	49.50
100	1.80	43.00	43.00	1.20	11.50	11.50	1.50	11.00	11.00
101	1.80	43.00	43.00	2.00	100.00	99.32	1.90	67.00	67.00
102	2.20	128.50	110.50	2.40	167.50	73.50	2.30	152.00	89.00
103	1.56	3.50	3.50	2.00	100.00	99.32	1.78	40.50	40.50
104	1.56	3.50	3.50	2.00	100.00	99.32	1.78	40.50	40.50
105	2.00	85.50	85.50	1.20	11.50	11.50	1.60	21.50	21.50
106	2.00	85.50	85.50	2.20	139.00	102.00	2.10	115.00	114.16
107	2.00	85.50	85.50	1.80	59.50	59.50	1.90	67.00	67.00
108	2.40	159.00	82.00	2.20	139.00	102.00	2.30	152.00	89.00
109	1.60	16.00	16.00	1.80	59.50	59.50	1.70	34.50	34.50
110	2.00	85.50	85.50	1.00	5.50	5.50	1.50	11.00	11.00
111	2.00	85.50	85.50	2.00	100.00	99.32	2.00	90.00	90.00
112	2.80	200.00	41.00	3.00	218.50	22.50	2.90	211.00	30.00
113	2.00	85.50	85.50	1.00	5.50	5.50	1.50	11.00	11.00
114	2.00	85.50	85.50	2.40	167.50	73.50	2.20	133.50	107.50
115	2.00	85.50	85.50	1.80	59.50	59.50	1.90	67.00	67.00
Sum		14077.00	6957.00		15074.00	6653.06		14531.50	6627.76

1997/98 - Students from Out of Addis Ababa Region

No.	Sem. I	Rank- W _N	Rank - C _N	Sem. II	Rank-W _N	Rank - C _N	CGPA	Rank-W _N	Rank - C _N
1	1.80	34.00	34.00	1.80	54.00	54.00	1.80	42.50	42.50
2	2.40	120.50	61.50	2.00	83.00	81.89	2.20	105.00	77.00
3	1.80	34.00	34.00	1.40	17.50	17.50	1.60	17.50	17.50
4	3.00	153.00	29.00	3.00	160.50	21.50	3.00	160.50	21.50
5	1.80	34.00	34.00	2.00	83.00	81.89	1.90	62.00	62.00
6	1.80	34.00	34.00	0.80	2.50	2.50	1.30	2.00	2.00
7	1.80	34.00	34.00	1.60	30.50	30.50	1.70	26.00	26.00
8	2.20	98.00	82.07	1.80	54.00	54.00	2.00	78.00	78.00
9	2.20	98.00	82.07	1.80	54.00	54.00	2.00	78.00	78.00
10	1.80	34.00	34.00	1.80	54.00	54.00	1.80	42.50	42.50
11	2.80	141.50	40.50	2.40	130.00	52.00	2.60	136.00	46.00
12	1.60	8.50	8.50	1.20	9.00	9.00	1.40	6.00	6.00
13	2.00	66.50	66.50	2.20	110.00	72.00	2.10	93.00	87.91
14	2.00	66.50	66.50	2.00	83.00	81.89	2.00	78.00	78.00
15	2.80	141.50	40.50	2.80	151.00	31.00	2.80	147.00	35.00
16	2.80	141.50	40.50	3.40	171.50	10.50	3.10	165.00	17.00
17	2.00	66.50	66.50	2.00	83.00	81.89	2.00	78.00	78.00
18	2.20	98.00	82.07	2.20	110.00	72.00	2.20	105.00	77.00
19	1.80	34.00	34.00	2.00	83.00	81.89	1.90	62.00	62.00
20	2.20	98.00	82.07	2.40	130.00	52.00	2.30	116.00	66.00
21	2.40	120.50	61.50	3.20	167.00	15.00	2.80	147.00	35.00
22	3.60	175.50	6.50	3.00	160.50	21.50	3.30	169.00	13.00
23	3.40	167.50	14.50	2.60	141.50	40.50	3.00	160.50	21.50
24	3.40	167.50	14.50	2.80	151.00	31.00	3.10	165.00	17.00
25	2.00	66.50	66.50	1.60	30.50	30.50	1.80	42.50	42.50
26	2.20	98.00	82.07	2.00	83.00	81.89	2.10	93.00	87.91
27	4.00	181.00	1.00	3.80	179.00	3.00	3.90	180.50	1.50
28	2.20	98.00	82.07	2.20	110.00	72.00	2.20	105.00	77.00
29	2.00	66.50	66.50	2.00	83.00	81.89	2.00	78.00	78.00
30	2.00	66.50	66.50	1.60	30.50	30.50	1.80	42.50	42.50
31	1.60	8.50	8.50	1.20	9.00	9.00	1.40	6.00	6.00
32	2.60	132.50	49.50	1.80	54.00	54.00	2.20	105.00	77.00
33	3.00	153.00	29.00	2.20	110.00	72.00	2.60	136.00	46.00
34	2.20	98.00	82.07	2.20	110.00	72.00	2.20	105.00	77.00
35	2.40	120.50	61.50	2.20	110.00	72.00	2.30	116.00	66.00
36	2.20	98.00	82.07	1.80	54.00	54.00	2.00	78.00	78.00
37	1.80	34.00	34.00	1.80	54.00	54.00	1.80	42.50	42.50
38	3.60	175.50	6.50	3.80	179.00	3.00	3.70	178.50	3.50
39	2.20	98.00	82.07	2.00	83.00	81.89	2.10	93.00	87.91
40	1.80	34.00	34.00	2.00	83.00	81.89	1.90	62.00	62.00
41	1.80	34.00	34.00	1.60	30.50	30.50	1.70	26.00	26.00
42	1.80	34.00	34.00	1.60	30.50	30.50	1.70	26.00	26.00
43	1.80	34.00	34.00	1.80	54.00	54.00	1.80	42.50	42.50
44	3.60	175.50	6.50	2.20	110.00	72.00	2.90	153.00	29.00
45	1.80	34.00	34.00	0.60	1.00	1.00	1.20	1.00	1.00
46	1.80	34.00	34.00	1.80	54.00	54.00	1.80	42.50	42.50
47	2.00	66.50	66.50	2.00	83.00	81.89	2.00	78.00	78.00
48	2.20	98.00	82.07	3.00	160.50	21.50	2.60	136.00	46.00
49	2.80	141.50	40.50	3.00	160.50	21.50	2.90	153.00	29.00
50	1.80	34.00	34.00	1.80	54.00	54.00	1.80	42.50	42.50

51	1.80	34.00	34.00	2.00	83.00	81.89	1.90	62.00	62.00
52	1.80	34.00	34.00	1.60	30.50	30.50	1.70	26.00	26.00
53	3.00	153.00	29.00	2.80	151.00	31.00	2.90	153.00	29.00
54	3.40	167.50	14.50	3.40	171.50	10.50	3.40	172.00	10.00
55	1.80	34.00	34.00	1.80	54.00	54.00	1.80	42.50	42.50
56	1.80	34.00	34.00	1.60	30.50	30.50	1.70	26.00	26.00
57	3.00	153.00	29.00	2.80	151.00	31.00	2.90	153.00	29.00
58	1.60	8.50	8.50	2.00	83.00	81.89	1.80	42.50	42.50
59	3.40	167.50	14.50	2.40	130.00	52.00	2.90	153.00	29.00
60	1.80	34.00	34.00	1.40	17.50	17.50	1.60	17.50	17.50
61	2.00	66.50	66.50	1.40	17.50	17.50	1.70	26.00	26.00
62	2.00	66.50	66.50	1.80	54.00	54.00	1.90	62.00	62.00
63	1.80	34.00	34.00	1.80	54.00	54.00	1.80	42.50	42.50
64	1.60	8.50	8.50	1.20	9.00	9.00	1.40	6.00	6.00
65	2.60	132.50	49.50	2.20	110.00	72.00	2.40	123.50	58.50
66	1.60	8.50	8.50	1.80	54.00	54.00	1.70	26.00	26.00
67	1.80	34.00	34.00	2.00	83.00	81.89	1.90	62.00	62.00
68	2.40	120.50	61.50	2.20	110.00	72.00	2.30	116.00	66.00
69	3.20	161.50	20.50	2.80	151.00	31.00	3.00	160.50	21.50
70	1.80	34.00	34.00	1.80	54.00	54.00	1.80	42.50	42.50
71	3.60	175.50	6.50	3.00	160.50	21.50	3.30	169.00	13.00
72	1.80	34.00	34.00	2.20	110.00	72.00	2.00	78.00	78.00
73	3.00	153.00	29.00	2.80	151.00	31.00	2.90	153.00	29.00
74	2.20	98.00	82.07	1.60	30.50	30.50	1.90	62.00	62.00
75	2.80	141.50	40.50	2.60	141.50	40.50	2.70	142.50	39.50
76	2.00	66.50	66.50	1.80	54.00	54.00	1.90	62.00	62.00
77	2.20	98.00	82.07	2.20	110.00	72.00	2.20	105.00	77.00
78	2.40	120.50	61.50	2.60	141.50	40.50	2.50	129.50	52.50
79	2.00	66.50	66.50	2.00	83.00	81.89	2.00	78.00	78.00
80	2.40	120.50	61.50	2.20	110.00	72.00	2.30	116.00	66.00
81	2.20	98.00	82.07	2.00	83.00	81.89	2.10	93.00	87.91
82	2.00	66.50	66.50	1.80	54.00	54.00	1.90	62.00	62.00
83	2.60	132.50	49.50	2.00	83.00	81.89	2.30	116.00	66.00
84	2.00	66.50	66.50	2.60	141.50	40.50	2.30	116.00	66.00
85	2.80	141.50	40.50	2.60	141.50	40.50	2.70	142.50	39.50
86	3.40	167.50	14.50	3.40	171.50	10.50	3.40	172.00	10.00
87	2.40	120.50	61.50	1.60	30.50	30.50	2.00	78.00	78.00
88	2.20	98.00	82.07	1.40	17.50	17.50	1.80	42.50	42.50
89	3.00	153.00	29.00	2.40	130.00	52.00	2.70	142.50	39.50
90	2.00	66.50	66.50	2.20	110.00	72.00	2.10	93.00	87.91
91	2.60	132.50	49.50	2.20	110.00	72.00	2.40	123.50	58.50
92	1.60	8.50	8.50	1.40	17.50	17.50	1.50	12.00	12.00
93	2.20	98.00	82.07	2.00	83.00	81.89	2.10	93.00	87.91
94	3.00	153.00	29.00	2.20	110.00	72.00	2.60	136.00	46.00
95	3.60	175.50	6.50	3.40	171.50	10.50	3.50	175.00	7.00
96	2.20	98.00	82.07	2.20	110.00	72.00	2.20	105.00	77.00
97	1.60	8.50	8.50	1.20	9.00	9.00	1.40	6.00	6.00
98	1.60	8.50	8.50	1.80	54.00	54.00	1.70	26.00	26.00
99	2.60	132.50	49.50	2.20	110.00	72.00	2.40	123.50	58.50
100	2.00	66.50	66.50	2.00	83.00	81.89	2.00	78.00	78.00
101	2.20	98.00	82.07	1.60	30.50	30.50	1.90	62.00	62.00
102	2.20	98.00	82.07	2.20	110.00	72.00	2.20	105.00	77.00
103	2.20	98.00	82.07	2.20	110.00	72.00	2.20	105.00	77.00
104	2.20	98.00	82.07	2.00	83.00	81.89	2.10	93.00	87.91
105	3.00	153.00	29.00	2.20	110.00	72.00	2.60	136.00	46.00

106	1.80	34.00	34.00	2.20	110.00	72.00	2.00	78.00	78.00
107	2.20	98.00	82.07	2.40	130.00	52.00	2.30	116.00	66.00
108	2.40	120.50	61.50	2.60	141.50	40.50	2.50	129.50	52.50
109	1.80	34.00	34.00	1.40	17.50	17.50	1.60	17.50	17.50
110	3.20	161.50	20.50	3.00	160.50	21.50	3.10	165.00	17.00
111	1.60	8.50	8.50	1.40	17.50	17.50	1.50	12.00	12.00
112	1.80	34.00	34.00	1.80	54.00	54.00	1.80	42.50	42.50
Sum		9968.50	5076.95		9959.00	5441.89		10012.00	5279.36

1997/98 Students from Addis Ababa Region

No.	Sem. I	Rank- W _N	Rank - C _N	Sem. II	Rank-W _N	Rank - C _N	CGPA	Rank-W _N	Rank - C _N
1	2.00	66.50	8.50	1.80	54.00	54.00	1.90	62.00	62.00
2	3.20	161.50	8.50	2.80	151.00	31.00	3.00	160.50	21.50
3	1.60	8.50	8.50	1.80	54.00	54.00	1.70	26.00	26.00
4	2.40	120.50	8.50	2.40	130.00	52.00	2.40	123.50	58.50
5	3.60	175.50	8.50	3.80	179.00	3.00	3.70	178.50	3.50
6	2.00	66.50	8.50	1.60	30.50	30.50	1.80	42.50	42.50
7	2.00	66.50	8.50	2.40	130.00	52.00	2.20	105.00	77.00
8	2.80	141.50	34.00	3.00	160.50	21.50	2.90	153.00	29.00
9	1.60	8.50	34.00	1.40	17.50	17.50	1.50	12.00	12.00
10	1.60	8.50	34.00	1.20	9.00	9.00	1.40	6.00	6.00
11	2.60	132.50	34.00	2.40	130.00	52.00	2.50	129.50	52.50
12	2.80	141.50	34.00	2.80	151.00	31.00	2.80	147.00	35.00
13	2.10	82.50	34.00	2.00	83.00	81.89	2.05	86.50	86.50
14	2.10	82.50	34.00	2.00	83.00	81.89	2.05	86.50	86.50
15	2.80	141.50	34.00	1.80	54.00	54.00	2.30	116.00	66.00
16	2.20	98.00	66.50	1.80	54.00	54.00	2.00	78.00	78.00
17	3.00	153.00	66.50	2.80	151.00	31.00	2.90	153.00	29.00
18	2.20	98.00	66.50	2.00	83.00	81.89	2.10	93.00	87.91
19	2.00	66.50	66.50	1.60	30.50	30.50	1.80	42.50	42.50
20	3.60	175.50	66.50	3.60	176.00	6.00	3.60	177.00	5.00
21	3.40	167.50	66.50	2.60	141.50	40.50	3.00	160.50	21.50
22	1.80	34.00	66.50	1.00	4.50	4.50	1.40	6.00	6.00
23	2.00	66.50	66.50	1.60	30.50	30.50	1.80	42.50	42.50
24	2.40	120.50	66.50	2.40	130.00	52.00	2.40	123.50	58.50
25	1.80	34.00	66.50	2.00	83.00	81.89	1.90	62.00	62.00
26	2.00	66.50	66.50	2.20	110.00	72.00	2.10	93.00	87.91
27	1.80	34.00	66.50	1.80	54.00	54.00	1.80	42.50	42.50
28	2.00	66.50	66.50	2.00	83.00	81.89	2.00	78.00	78.00
29	3.00	153.00	66.50	3.00	160.50	21.50	3.00	160.50	21.50
30	3.80	180.00	66.50	4.00	181.00	1.00	3.90	180.50	1.50
31	1.60	8.50	82.50	1.60	30.50	30.50	1.60	17.50	17.50
32	1.80	34.00	82.50	1.80	54.00	54.00	1.80	42.50	42.50
33	2.20	98.00	82.07	2.20	110.00	72.00	2.20	105.00	77.00
34	2.60	132.50	82.07	3.20	167.00	15.00	2.90	153.00	29.00
35	3.60	175.50	82.07	3.20	167.00	15.00	3.40	172.00	10.00
36	2.20	98.00	82.07	2.20	110.00	72.00	2.20	105.00	77.00
37	2.00	66.50	82.07	1.80	54.00	54.00	1.90	62.00	62.00
38	2.20	98.00	82.07	2.40	130.00	52.00	2.30	116.00	66.00
39	2.40	120.50	82.07	0.80	2.50	2.50	1.60	17.50	17.50
40	1.80	34.00	82.07	1.20	9.00	9.00	1.50	12.00	12.00
41	1.60	8.50	61.50	1.20	9.00	9.00	1.40	6.00	6.00
42	1.80	34.00	61.50	1.80	54.00	54.00	1.80	42.50	42.50

43	2.40	120.50	61.50	2.60	141.50	40.50	2.50	129.50	52.50
44	3.40	167.50	61.50	3.60	176.00	6.00	3.50	175.00	7.00
45	3.40	167.50	61.50	3.60	176.00	6.00	3.50	175.00	7.00
46	2.40	120.50	61.50	2.40	130.00	52.00	2.40	123.50	58.50
47	2.20	98.00	61.50	2.00	83.00	81.89	2.10	93.00	87.91
48	2.20	98.00	61.50	1.60	30.50	30.50	1.90	62.00	62.00
49	2.60	132.50	49.50	2.40	130.00	52.00	2.50	129.50	52.50
50	1.60	8.50	49.50	1.40	17.50	17.50	1.50	12.00	12.00
51	2.00	66.50	49.50	1.80	54.00	54.00	1.90	62.00	62.00
52	2.00	66.50	40.50	1.40	17.50	17.50	1.70	26.00	26.00
53	2.40	120.50	40.50	2.60	141.50	40.50	2.50	129.50	52.50
54	1.80	34.00	40.50	1.60	30.50	30.50	1.70	26.00	26.00
55	1.60	8.50	40.50	2.00	83.00	81.89	1.80	42.50	42.50
56	2.00	66.50	29.00	2.40	130.00	52.00	2.20	105.00	77.00
57	2.00	66.50	29.00	1.80	54.00	54.00	1.90	62.00	62.00
58	3.20	161.50	29.00	3.40	171.50	10.50	3.30	169.00	13.00
59	1.80	34.00	29.00	1.80	54.00	54.00	1.80	42.50	42.50
60	2.40	120.50	29.00	3.00	160.50	21.50	2.70	142.50	39.50
61	2.20	98.00	20.50	1.00	4.50	4.50	1.60	17.50	17.50
62	2.80	141.50	20.50	2.60	141.50	40.50	2.70	142.50	39.50
63	3.00	153.00	14.50	2.20	110.00	72.00	2.60	136.00	46.00
64	2.40	120.50	14.50	3.00	160.50	21.50	2.70	142.50	39.50
65	2.00	66.50	14.50	2.20	110.00	72.00	2.10	93.00	87.91
66	3.00	153.00	6.50	2.20	110.00	72.00	2.60	136.00	46.00
67	3.00	153.00	6.50	3.40	171.50	10.50	3.20	167.00	15.00
68	2.00	66.50	6.50	1.80	54.00	54.00	1.90	62.00	62.00
69	2.00	66.50	2.00	2.00	83.00	81.89	2.00	78.00	78.00
Sum		6502.50	3204.05		6512.00	2839.11		6459.00	3001.64

1999/2000 - Students from Out of Addis Ababa Region

No.	Sem. I	Rank- W _N	Rank - C _N	Sem. II	Rank-W _N	Rank - C _N	CGPA	Rank-W _N	Rank - C _N
1	1.60	7.50	7.50	1.40	9.50	9.50	1.50	6.50	6.50
2	2.00	40.50	40.50	1.80	24.50	24.50	1.90	27.00	27.00
3	1.80	21.50	21.50	1.80	24.50	24.50	1.80	16.50	16.50
4	2.00	40.50	40.50	2.00	44.50	44.50	2.00	43.00	43.00
5	2.60	94.00	41.00	2.80	114.00	21.00	2.70	109.50	25.50
6	3.00	116.00	19.00	3.00	119.50	15.50	3.00	120.00	15.00
7	3.00	116.00	19.00	2.20	68.00	61.74	2.60	104.50	30.50
8	3.00	116.00	19.00	3.60	130.50	4.50	3.30	126.50	8.50
9	2.20	64.00	61.22	1.40	9.50	9.50	1.80	16.50	16.50
10	3.20	124.00	11.00	3.40	129.00	6.00	3.30	126.50	8.50
11	2.80	107.00	28.00	2.60	104.00	31.00	2.70	109.50	25.50
12	2.20	64.00	61.22	1.80	24.50	24.50	2.00	43.00	43.00
13	2.60	94.00	41.00	2.40	89.00	46.00	2.50	95.00	40.00
14	2.60	94.00	41.00	2.40	89.00	46.00	2.50	95.00	40.00
15	3.20	124.00	11.00	2.60	104.00	31.00	2.90	117.00	18.00
16	3.00	116.00	19.00	2.20	68.00	61.74	2.60	104.50	30.50
17	2.60	94.00	41.00	2.20	68.00	61.74	2.40	83.00	52.00
18	1.80	21.50	21.50	2.00	44.50	44.50	1.90	27.00	27.00
19	2.20	64.00	61.22	2.80	114.00	21.00	2.50	95.00	40.00
20	3.00	116.00	19.00	2.20	68.00	61.74	2.60	104.50	30.50
21	3.00	116.00	19.00	2.20	68.00	61.74	2.60	104.50	30.50
22	2.00	40.50	40.50	2.60	104.00	31.00	2.30	74.50	60.50
23	3.60	129.50	5.50	3.20	125.00	10.00	3.40	129.50	5.50
24	2.20	64.00	61.22	1.80	24.50	24.50	2.00	43.00	43.00
25	2.60	94.00	41.00	1.80	24.50	24.50	2.20	67.50	65.50
26	1.60	7.50	7.50	1.00	1.00	1.00	1.30	1.00	1.00
27	2.40	80.00	55.00	2.40	89.00	46.00	2.40	83.00	52.00
28	1.60	7.50	7.50	2.20	68.00	61.74	1.90	27.00	27.00
29	2.00	40.50	40.50	2.40	89.00	46.00	2.20	67.50	65.50
30	1.80	21.50	21.50	2.00	44.50	44.50	1.90	27.00	27.00
31	3.20	124.00	11.00	3.25	128.00	7.00	3.23	124.00	11.00
32	2.20	64.00	61.22	2.20	68.00	61.74	2.20	67.50	65.50
33	3.80	132.50	2.50	3.60	130.50	4.50	3.70	131.50	3.50
34	2.20	64.00	61.22	2.00	44.50	44.50	2.10	57.00	57.00
35	4.00	134.00	1.00	4.00	134.00	1.00	4.00	134.00	1.00
36	1.60	7.50	7.50	1.40	9.50	9.50	1.50	6.50	6.50
37	3.80	132.50	2.50	3.80	132.50	2.50	3.80	133.00	2.00
38	1.60	7.50	7.50	2.00	44.50	44.50	1.80	16.50	16.50
39	2.20	64.00	61.22	2.20	68.00	61.74	2.20	67.50	65.50
40	1.80	21.50	21.50	1.80	24.50	24.50	1.80	16.50	16.50
41	2.80	107.00	28.00	2.20	68.00	61.74	2.50	95.00	40.00
42	2.00	40.50	40.50	2.00	44.50	44.50	2.00	43.00	43.00
43	2.20	64.00	61.22	2.60	104.00	31.00	2.40	83.00	52.00
44	2.00	40.50	40.50	2.00	44.50	44.50	2.00	43.00	43.00
45	1.80	21.50	21.50	2.20	68.00	61.74	2.00	43.00	43.00
46	3.00	116.00	19.00	2.60	104.00	31.00	2.80	113.00	22.00
47	3.00	116.00	19.00	3.20	125.00	10.00	3.10	122.00	13.00
48	2.00	40.50	40.50	2.20	68.00	61.74	2.10	57.00	57.00
49	1.80	21.50	21.50	2.00	44.50	44.50	1.90	27.00	27.00
50	2.00	40.50	40.50	2.00	44.50	44.50	2.00	43.00	43.00

51	2.20	64.00	61.22	2.60	104.00	31.00	2.40	83.00	52.00
52	2.20	64.00	61.22	2.60	104.00	31.00	2.40	83.00	52.00
53	1.60	7.50	7.50	2.25	80.00	55.00	1.93	34.00	34.00
54	3.60	129.50	5.50	3.00	119.50	15.50	3.30	126.50	8.50
55	2.00	40.50	40.50	2.00	44.50	44.50	2.00	43.00	43.00
56	2.80	107.00	28.00	2.20	68.00	61.74	2.50	95.00	40.00
57	1.60	7.50	7.50	2.20	68.00	61.74	1.90	27.00	27.00
58	2.60	94.00	41.00	2.60	104.00	31.00	2.60	104.50	30.50
59	1.60	7.50	7.50	1.20	4.00	4.00	1.40	2.50	2.50
60	2.00	40.50	40.50	2.00	44.50	44.50	2.00	43.00	43.00
61	2.20	64.00	61.22	2.60	104.00	31.00	2.40	83.00	52.00
62	1.60	7.50	7.50	1.40	9.50	9.50	1.50	6.50	6.50
63	2.40	80.00	55.00	2.60	104.00	31.00	2.50	95.00	40.00
64	1.60	7.50	7.50	1.20	4.00	4.00	1.40	2.50	2.50
65	1.80	21.50	21.50	1.20	4.00	4.00	1.50	6.50	6.50
66	2.00	40.50	40.50	1.80	24.50	24.50	1.90	27.00	27.00
67	2.20	64.00	61.22	1.80	24.50	24.50	2.00	43.00	43.00
68	1.80	21.50	21.50	1.80	24.50	24.50	1.80	16.50	16.50
69	1.80	21.50	21.50	1.80	24.50	24.50	1.80	16.50	16.50
70	2.60	94.00	41.00	2.80	114.00	21.00	2.70	109.50	25.50
71	2.60	94.00	41.00	1.60	14.50	14.50	2.10	57.00	57.00
72	2.80	107.00	28.00	3.00	119.50	15.50	2.90	117.00	18.00
73	2.20	64.00	61.22	2.20	68.00	61.74	2.20	67.50	65.50
74	1.80	21.50	21.50	2.40	89.00	46.00	2.10	57.00	57.00
75	2.00	40.50	40.50	1.80	24.50	24.50	1.90	27.00	27.00
76	3.20	124.00	11.00	3.00	119.50	15.50	3.10	122.00	13.00
77	2.00	40.50	40.50	2.00	44.50	44.50	2.00	43.00	43.00
78	3.00	116.00	19.00	2.40	89.00	46.00	2.70	109.50	25.50
79	2.40	80.00	55.00	2.20	68.00	61.74	2.30	74.50	60.50
80	2.60	94.00	41.00	2.40	89.00	46.00	2.50	95.00	40.00
81	2.00	40.50	40.50	1.20	4.00	4.00	1.60	10.00	10.00
82	2.40	80.00	55.00	1.80	24.50	24.50	2.10	57.00	57.00
83	2.60	94.00	41.00	2.60	104.00	31.00	2.60	104.50	30.50
84	2.60	94.00	41.00	2.40	89.00	46.00	2.50	95.00	40.00
85	2.40	80.00	55.00	2.40	89.00	46.00	2.40	83.00	52.00
86	2.20	64.00	61.22	2.00	44.50	44.50	2.10	57.00	57.00
87	2.00	40.50	40.50	2.00	44.50	44.50	2.00	43.00	43.00
88	1.60	7.50	7.50	1.40	9.50	9.50	1.50	6.50	6.50
89	3.40	127.00	8.00	3.20	125.00	10.00	3.30	126.50	8.50
90	2.00	40.50	40.50	1.80	24.50	24.50	1.90	27.00	27.00
91	2.00	40.50	40.50	1.40	9.50	9.50	1.70	11.50	11.50
Sum		6069.00	2921.04		6054.50	2946.59		6055.50	2867.50

1999/2000 - Students from Addis Ababa Region

No.	Sem. I	Rank- W _N	Rank - C _N	Sem. II	Rank-W _N	Rank - C _N	CGPA	Rank-W _N	Rank - C _N
1	1.60	7.50	7.50	2.00	44.50	44.50	1.80	16.50	16.50
2	2.60	94.00	41.00	2.00	44.50	44.50	2.30	74.50	60.50
3	1.80	21.50	21.50	2.00	44.50	44.50	1.90	27.00	27.00
4	2.60	94.00	41.00	2.40	89.00	46.00	2.50	95.00	40.00
5	2.60	94.00	41.00	2.40	89.00	46.00	2.50	95.00	40.00
6	2.00	40.50	40.50	2.00	44.50	44.50	2.00	43.00	43.00
7	2.20	64.00	61.22	2.60	104.00	31.00	2.40	83.00	52.00
8	2.40	80.00	55.00	2.20	68.00	61.74	2.30	74.50	60.50

9	2.20	64.00	61.22	2.00	44.50	44.50	2.10	57.00	57.00
10	2.60	94.00	41.00	2.40	89.00	46.00	2.50	95.00	40.00
11	2.20	64.00	61.22	1.80	24.50	24.50	2.00	43.00	43.00
12	2.80	107.00	28.00	2.80	114.00	21.00	2.80	113.00	22.00
13	1.80	21.50	21.50	1.20	4.00	4.00	1.50	6.50	6.50
14	2.80	107.00	28.00	3.00	119.50	15.50	2.90	117.00	18.00
15	2.20	64.00	61.22	2.40	89.00	46.00	2.30	74.50	60.50
16	2.00	40.50	40.50	2.20	68.00	61.74	2.10	57.00	57.00
17	3.20	124.00	11.00	2.60	104.00	31.00	2.90	117.00	18.00
18	2.40	80.00	55.00	2.00	44.50	44.50	2.20	67.50	65.50
19	2.60	94.00	41.00	2.20	68.00	61.74	2.40	83.00	52.00
20	2.00	40.50	40.50	2.20	68.00	61.74	2.10	57.00	57.00
21	2.00	40.50	40.50	1.80	24.50	24.50	1.90	27.00	27.00
22	1.60	7.50	7.50	2.00	44.50	44.50	1.80	16.50	16.50
23	2.20	64.00	61.22	1.60	14.50	14.50	1.90	27.00	27.00
24	1.80	21.50	21.50	1.60	14.50	14.50	1.70	11.50	11.50
25	2.00	40.50	40.50	2.00	44.50	44.50	2.00	43.00	43.00
26	3.00	116.00	19.00	2.80	114.00	21.00	2.90	117.00	18.00
27	2.80	107.00	28.00	2.00	44.50	44.50	2.40	83.00	52.00
28	2.20	64.00	61.22	2.00	44.50	44.50	2.10	57.00	57.00
29	2.60	94.00	41.00	2.40	89.00	46.00	2.50	95.00	40.00
30	2.40	80.00	55.00	2.40	89.00	46.00	2.40	83.00	52.00
31	2.60	94.00	41.00	2.40	89.00	46.00	2.50	95.00	40.00
32	2.20	64.00	61.22	2.20	68.00	61.74	2.20	67.50	65.50
33	2.00	40.50	40.50	2.20	68.00	61.74	2.10	57.00	57.00
34	2.40	80.00	55.00	2.20	68.00	61.74	2.30	74.50	60.50
35	1.80	21.50	21.50	2.20	68.00	61.74	2.00	43.00	43.00
36	3.60	129.50	5.50	3.80	132.50	2.50	3.70	131.50	3.50
37	2.60	94.00	41.00	3.00	119.50	15.50	2.80	113.00	22.00
38	1.60	7.50	7.50	2.75	111.00	24.00	2.18	63.00	63.00
39	2.20	64.00	61.22	1.60	14.50	14.50	1.90	27.00	27.00
40	3.60	129.50	5.50	3.20	125.00	10.00	3.40	129.50	5.50
41	3.00	116.00	19.00	3.20	125.00	10.00	3.10	122.00	13.00
42	2.00	40.50	40.50	2.40	89.00	46.00	2.20	67.50	65.50
43	2.20	64.00	61.22	1.80	24.50	24.50	2.00	43.00	43.00
Sum		2976.00	1634.96		2990.50	1609.41		2989.50	1688.50

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in any university and that all sources of material used for the thesis have been duly acknowledged.

Name : Zewdu Teka

Signature :  _____

Date : July 6-2007