Pir Mehr Ali Shah
ARID AGRICULTURE UNIVERSITY
RAWALPINDI

DEPARTMENT OF ZOOLOGY

Self Assessment Report
2007-08

Program Team

Dr. Mazhar Qayyum (Coordinator)
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CONTENTS

INTRODUCTION

The Department of Zoology/Biology offers research oriented M. Sc., M. Phil. and Ph. D. degrees in Zoology/Biology. Students which fulfill the criteria are admitted in M. Sc., M. Phil. and Ph.D. degrees program..

The Zoological Sciences degree programs are design to be flexible in order to meet the student's requirements in sub-discipline of modern Zoology viz., Microbiology, Animal Diversity and Zoography, Faunal Biodiversity of Pakistan, Parasitology, Reproductive Physiology/Endocrinology, Developmental Biology, Aquaculture and Fisheries, Animal Physiology, Conservation Biology and Environmental Biology. The laboratories are designed for conducting modern research in its diverse fields. Furthermore, Students are doing coordinated research projects in these state-of-the-art laboratory facilities of National Agriculture Research Center, Museum of Natural History, National Institute of Health, Islamabad.

The M. Sc. and Ph. D degree programs in Zoology were initially started in 1997 and 2001, respectively. The Department have highly qualified faculty most of them with post doctorate experience from International universities. The faculty has produced 35 publications in the last five years in journals of repute. The faculty members have specialization in the field of Parasitology and Microbiology, Physiology and Reproductive Physiology, Aquaculture and Fisheries and Wildlife and Ecology. The department is coordinating projects with different international universities of UK.

SECTION-1

Criterion-1: Program mission, objectives and outcomes

The course aims to give a wide coverage of modern Zoology, followed by the opportunity to specialize in one or more areas reflecting the student's particular interest. Since animals cannot be studied in isolation, the course includes elements of microbiology, plant science, genetics and biochemistry, with the opportunity of carrying some of these additional subjects to a more advanced level.

Mission Statement of the Department of Zoology

Graduates in zoology will have an understanding of the key concepts of modern Zoology, and be aware of the scope and limitations of the subject. In addition they will have sufficient specialist knowledge in selected areas to allow them to pursue a research degree in animal science. Graduates will also have acquired a general biological and scientific background as well as having gained experience in problem solving and have developed the communication, numerical and computer skills required for a wide range of careers.

STANDARDS:

Standard 1-1: Documented measurable objectives

Objectives:

- To impart high quality education in Zoology
- To equip the students with communication skills and professionalism
- To establish culture of research
- To conduct scientific meetings/ conferences/ workshops/ seminars

Outcomes:

- To produce students and researchers in the field of zoology of .M. Sc., M.Phil and Ph.D.
- The graduates of this particular department are satisfactorily educated and expressive so that they are able to get jobs.
- Researcher and students are able to conceive ideas, prepare and execute research projects
- Different scientific meetings and conferences has been organized to facilitate exchange of ideas

Main elements to achieve objectives

- M.Sc. and M.Phil degrees are supported with research reports, seminars, study

tours and theses

- Continuous laboratories strengthening depending on the available resources
- Improvement of teaching for the award of degrees by using multimedia, animations and recent research
- Development of collaboration with other national and international research organizations
- Preparation and conduction of research projects to establish research culture

TABLE-1: OBJECTIVES ASSSESSMENT

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	To impart high quality education in Zoology	Tests and students feed back	At the end of semester	Regular update curriculum	Improvement of course contents
2	To equip the students with communication skills and professionalism	Participation of students in open scientific talks and classes	Class discussions	Presentations	Presentations and seminars
3	To conduct scientific conferences/ workshops/ seminars	By inviting applications through proper channels	At the time of completion of seminars and workshops	By regular conducting seminars and workshops	Workshops and Seminars are conducted frequently
4	To establish culture of research	At the time of starting research and academic sessions	At the completion of research thesis	More need is required to trained academician and scientists	Academician and Scientists are trained

TABLE-2 STANDARD 1-2: OBJECTIVES VS OUTCOMES

	Objectives				
Outcomes	Sr. No.	1	2	3	4
	1	**	**	**	***
	2	*	**	***	***
	3	***	***	***	**
	4	***	***	**	**

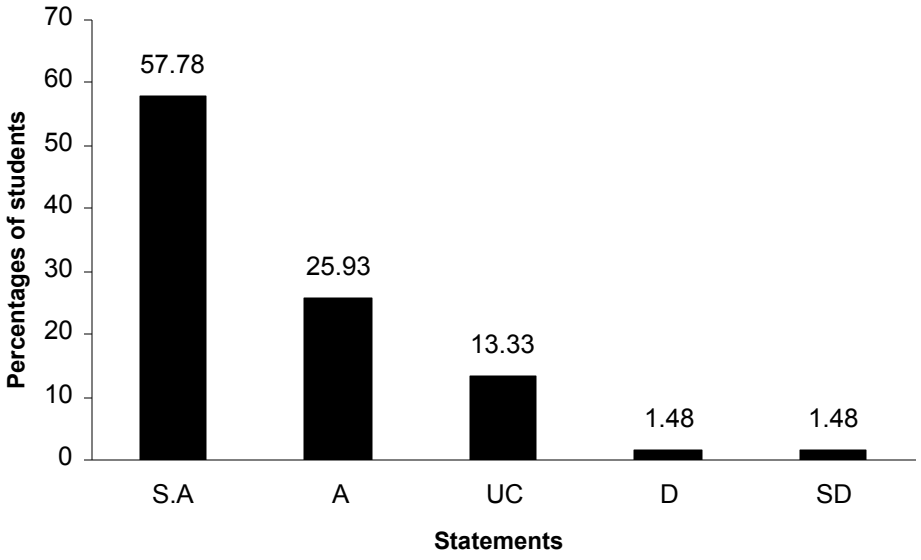
* Relevant
** Relevant and satisfactory
*** Highly relevant and satisfactory

Proforma 1 & 10 Course and Teacher Evaluation

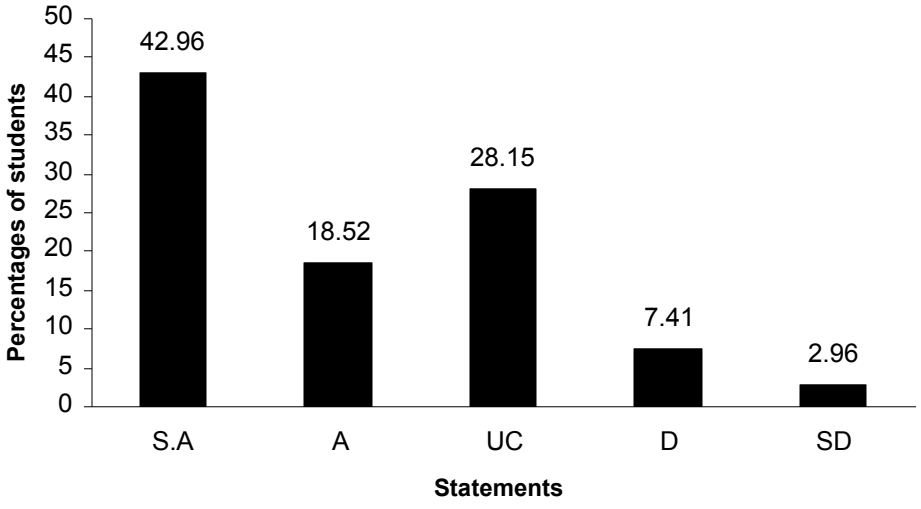
Dr. Mazhar Qayyum Teacher Evaluation

Data were collected from 70 students. Data shows that the students are strongly agreed (57.78%) that the teacher is fair in examination. More than 42% of the students are strongly agreed that the instructor came with good preparation. Similarly, most of the students agreed that instructor demonstrates knowledge of the subject, instructor has completed the whole course, the Instructor provides additional material apart from the textbook, the Instructor gives citations regarding current situations with reference to Pakistani context, the Instructor communicates the subject matter, the Instructor shows respect towards students and encourages class participation effectively, the Instructor maintains an environment that is conducive to learning, the Instructor arrives on time, the Instructor returns the graded scripts etc. in a reasonable amount of time, the Instructor was available during the specified office hours and for after class consultations, the Subject matter presented in the course has increased your knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated

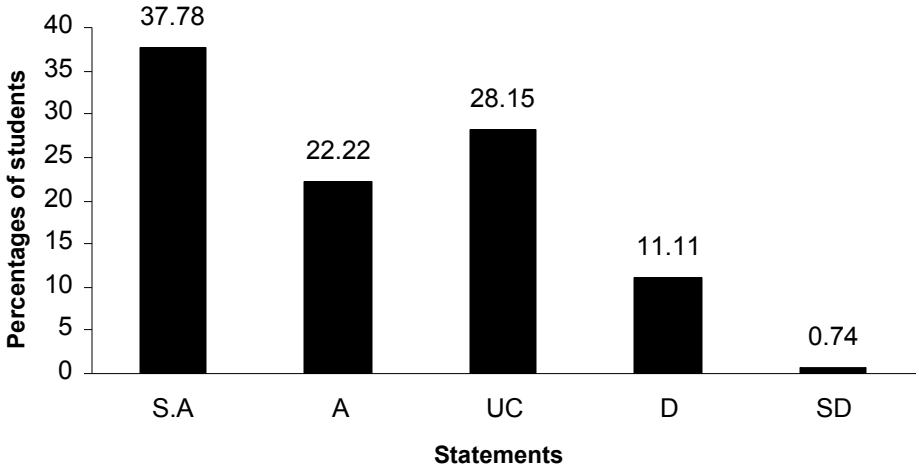
The Instructor is fair in examination



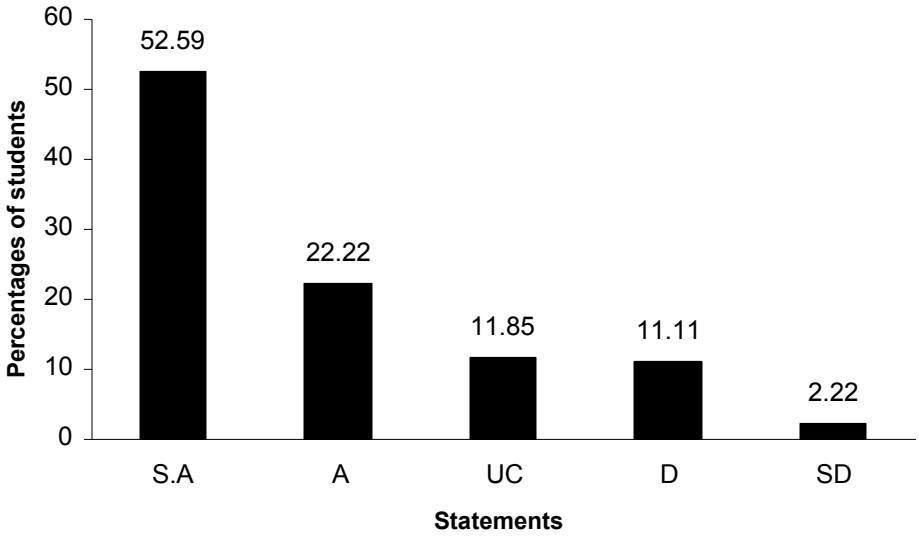
The Instructor is prepared for each class



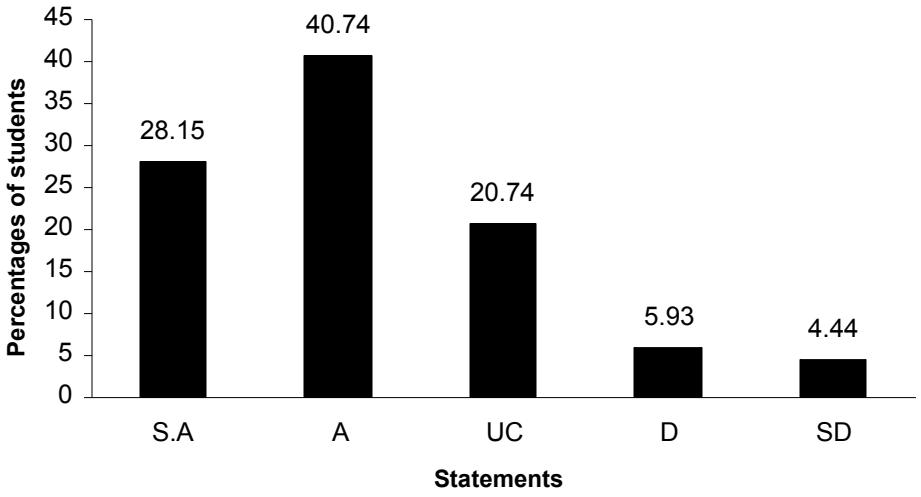
instructor demonstrates knowledge of the subject



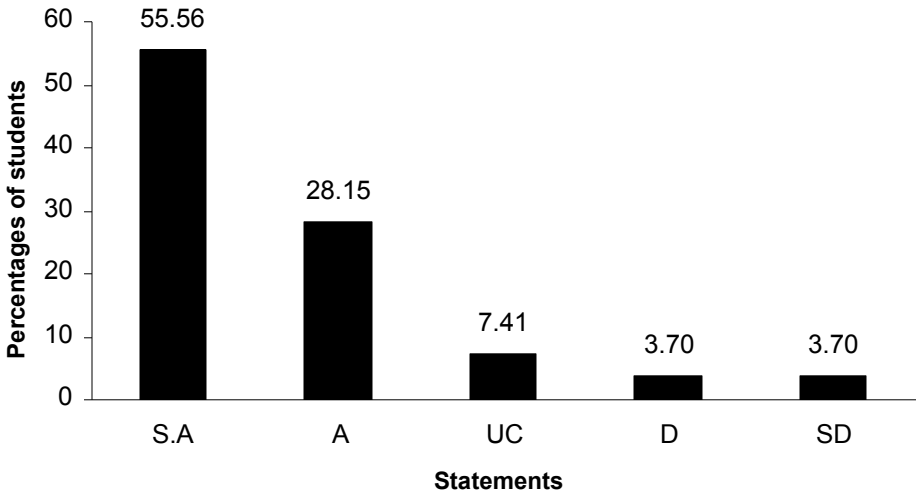
. The Instructor has completed the whole course



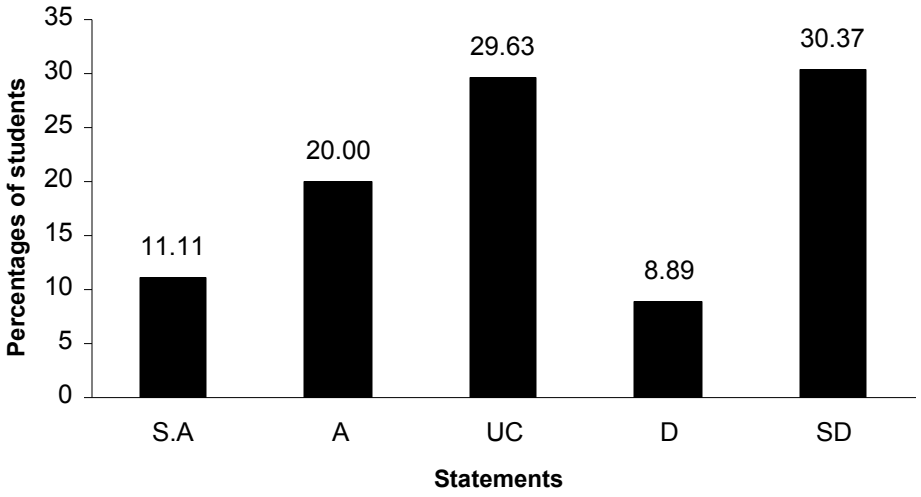
The Instructor provides additional material apart from the textbook



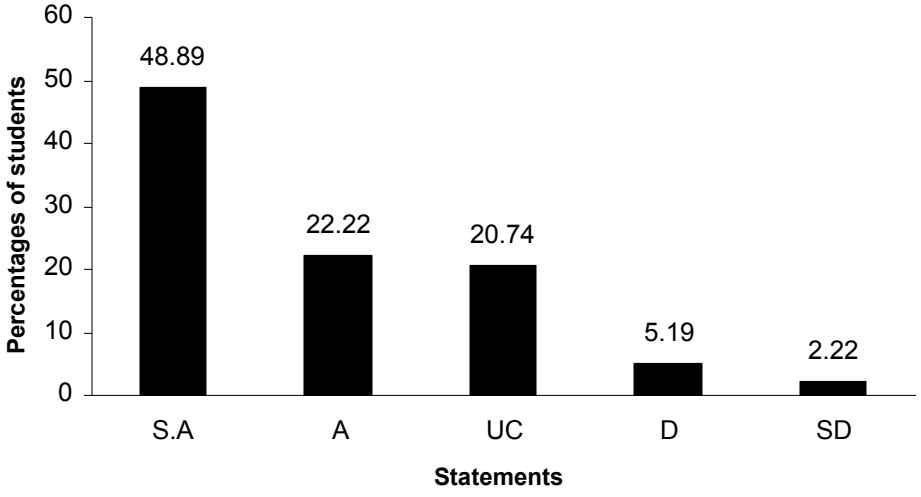
The Instructor gives citations regarding current situations with reference to Pakistani context



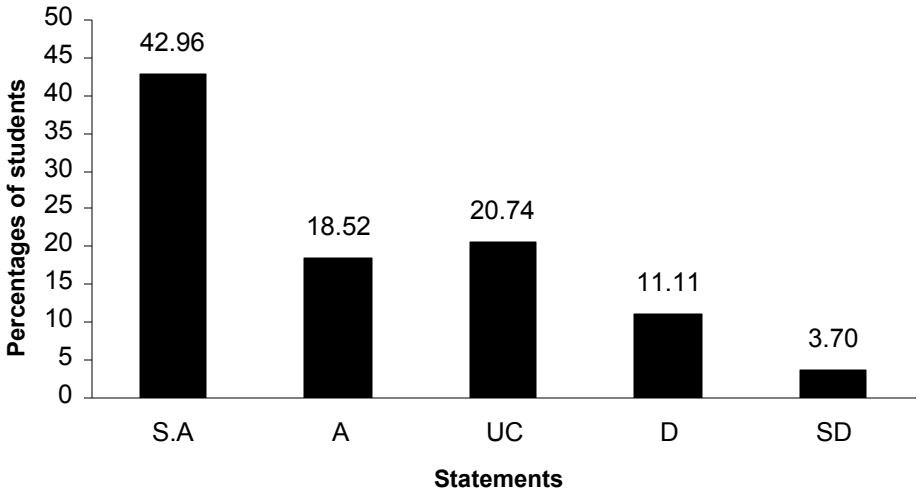
The Instructor communicates the subject matter effectively



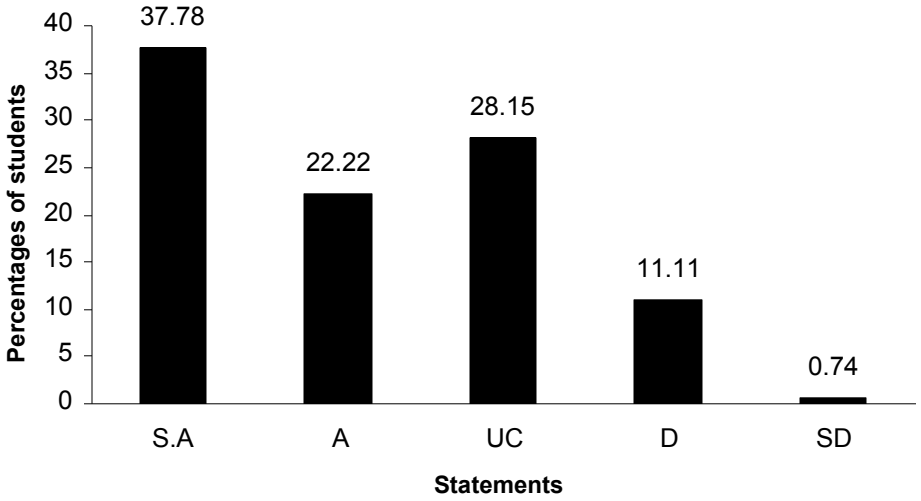
The Instructor shows respect towards students and encourages class participation



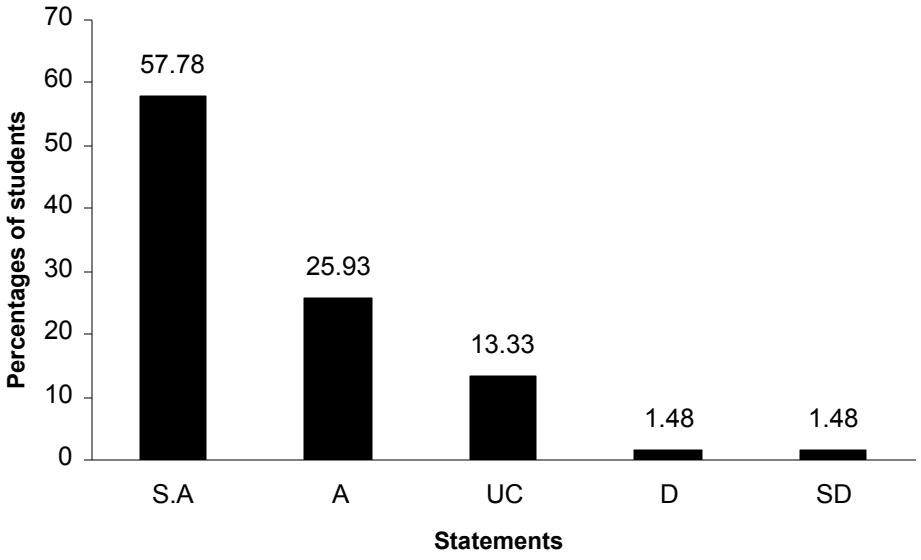
The Instructor maintains an environment that is conducive to learning



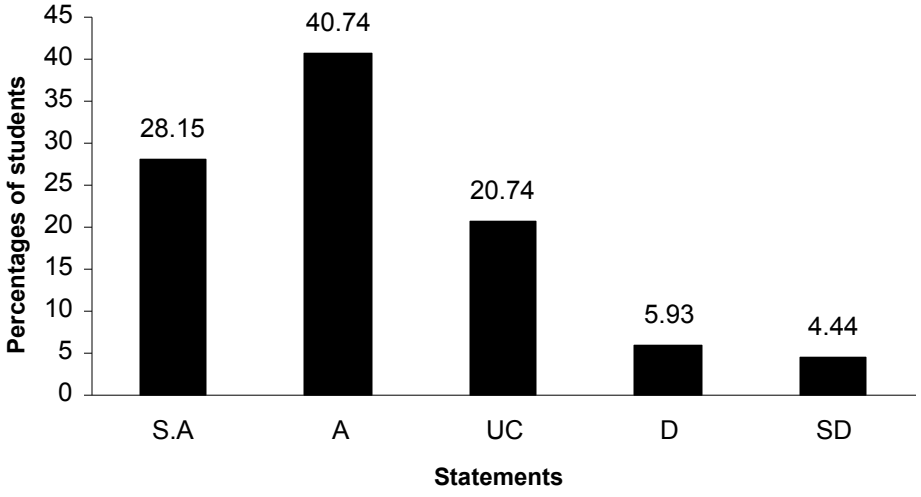
The Instructor arrives on time



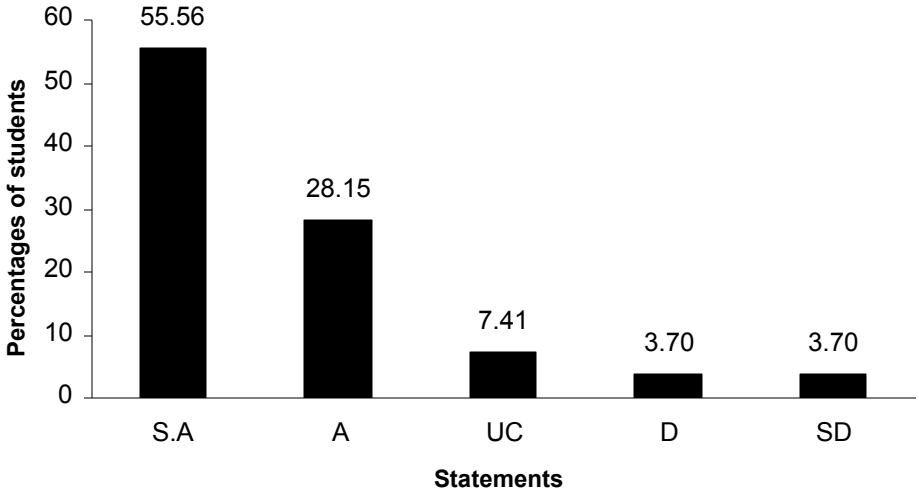
The Instructor is fair in examination



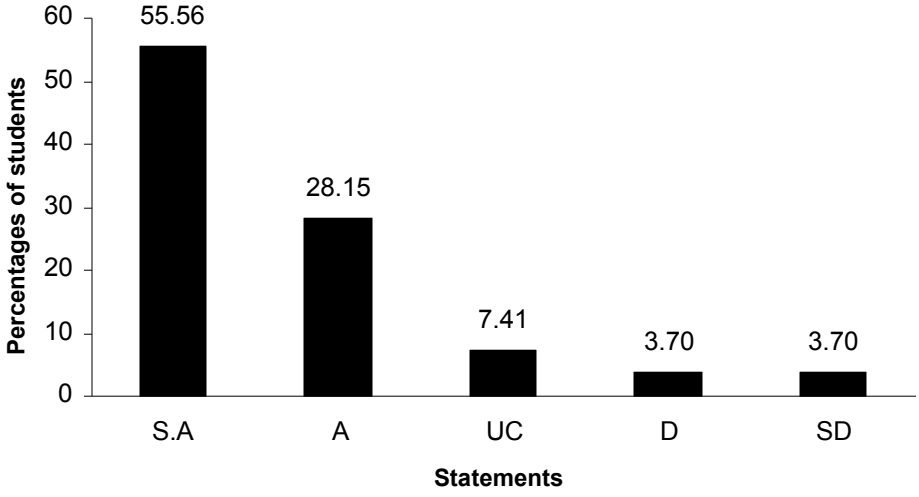
The Instructor returns the graded scripts etc. in a reasonable amount of time



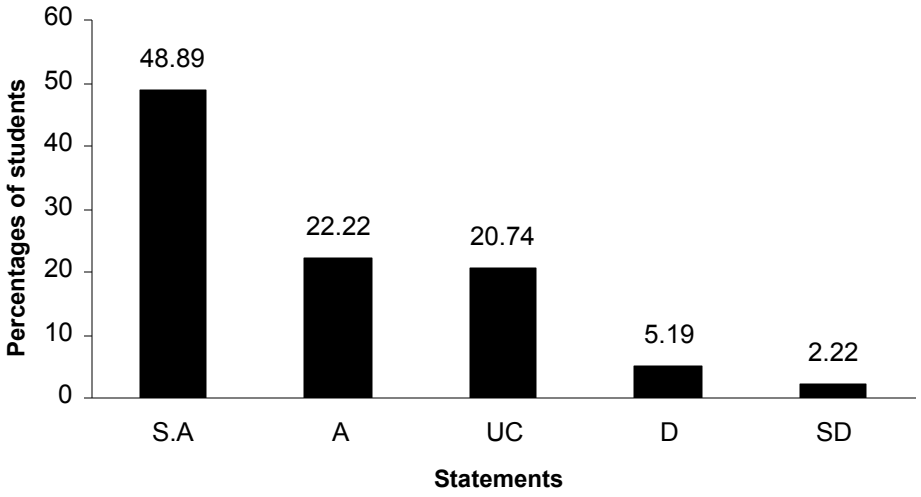
The Instructor was available during the specified office hours and for after class consultations



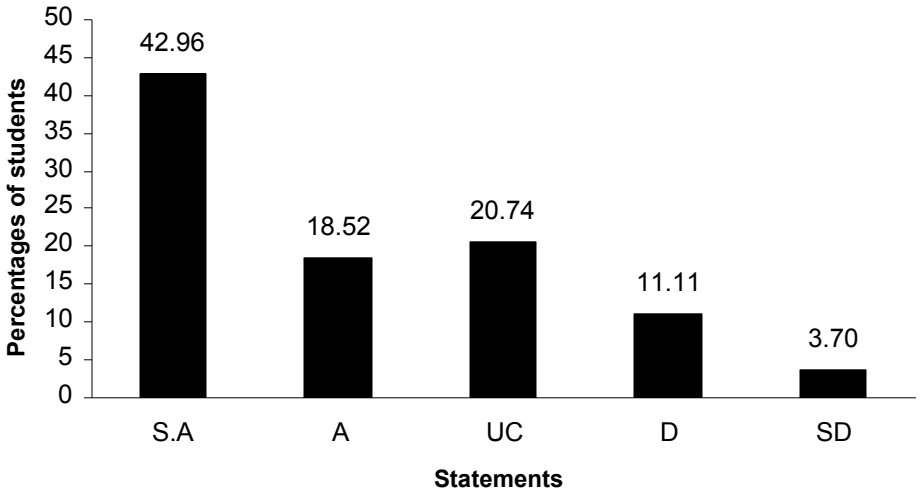
The Subject matter presented in the course has increased your knowledge of the subject



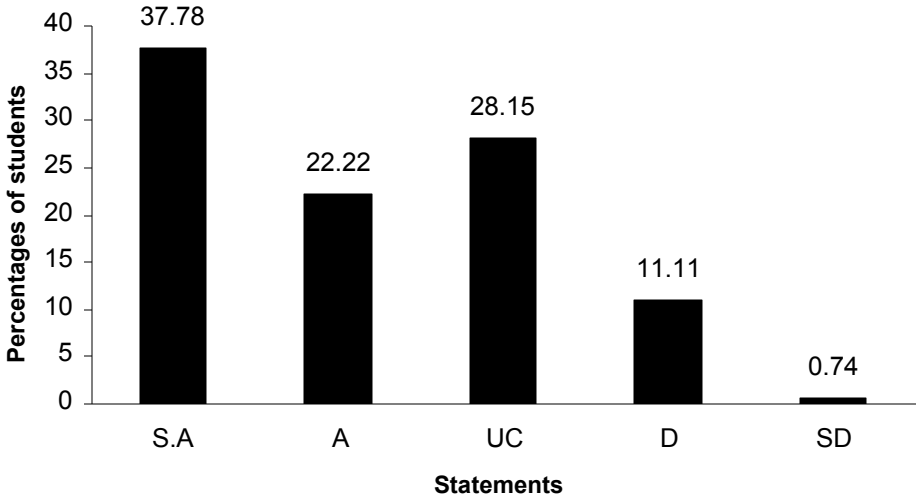
The syllabus clearly states course objectives requirements, procedures and grading criteria



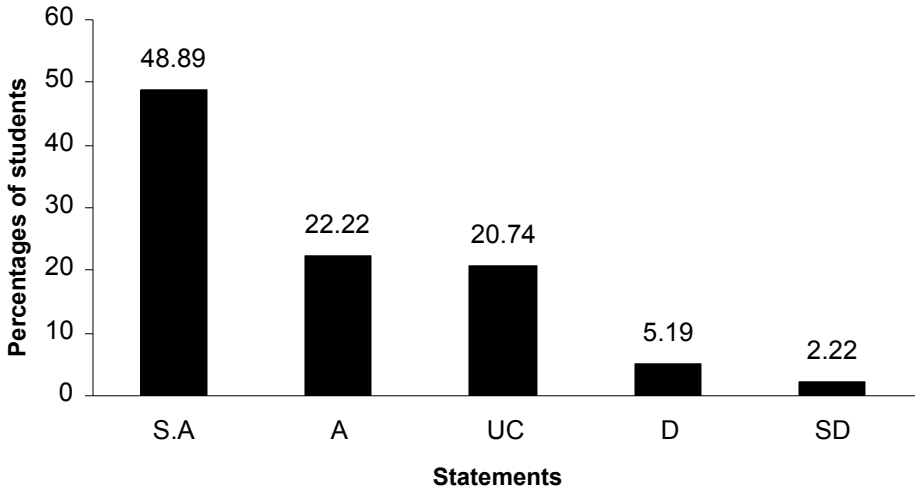
The course integrates theoretical course concepts with real-world applications



The assignments and exams covered the materials presented in the course



The course material is modern and updated

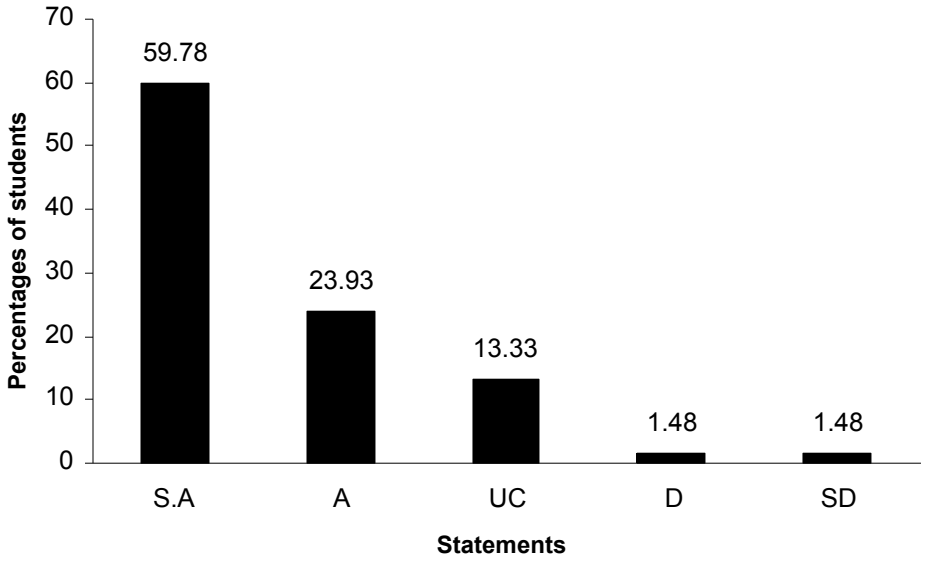


Course Evaluation

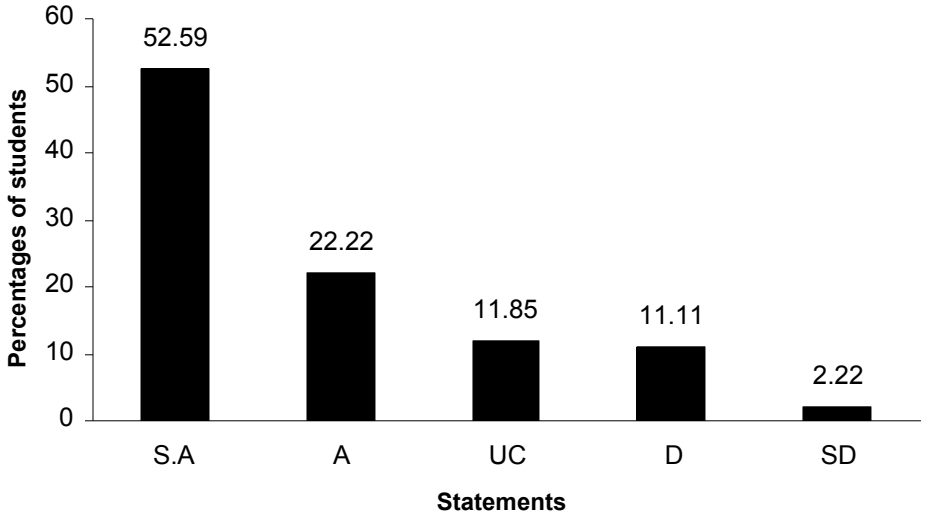
BIOL-709	**Fundamentals of Microbiology and Immunology**	**3(2-2)**	**Dr. Mazhar Qayyum**

Data were collected from 70 students. Data shows that the students are strongly agreed (59.78%) that the course objectives were clear. More than 52% of the students are strongly agreed that the course workload was manageable, well organized (e.g. timely access to materials, notification of changes, etc.). The students are strongly agreed that the approximate level of student's attendance during the whole course was higher; students participated actively in the course and have made progress in this course. Most of the students think the course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.). Similarly, they are agreed that the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials (Lesson Plans, Course Notes etc.) were relevant and useful, recommended reading books etc. were relevant and appropriate. They described that the provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area. According to most of the students, the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable, the material was well organized and presented, the instructor was responsive to student needs and problems, instructor was regular throughout the course and the material in the tutorials was useful

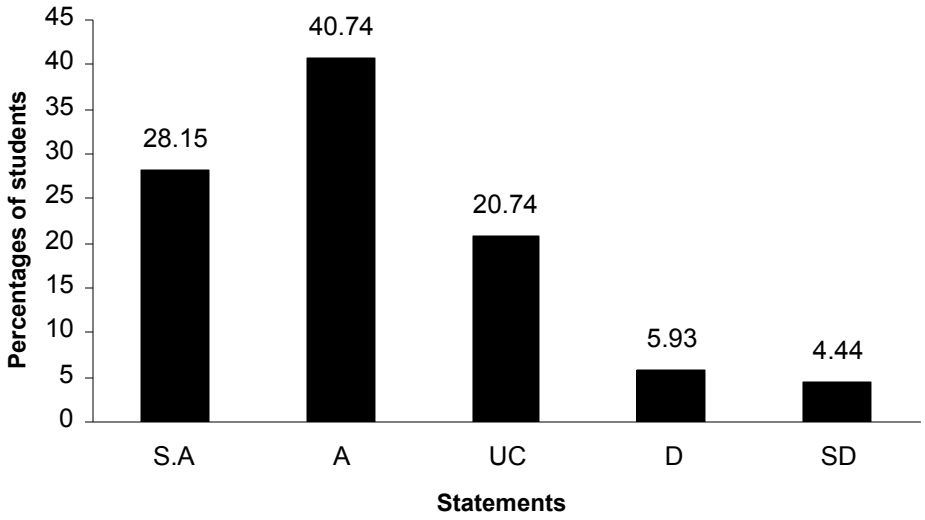
The Course objectives were clear



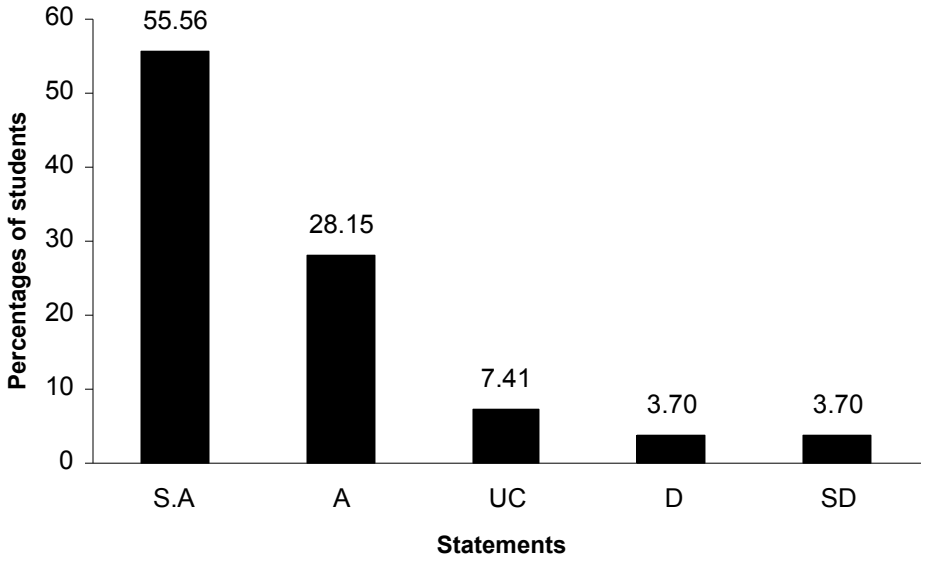
The Course was well organized (e.g. timely access to materials, notification of changes, etc.)



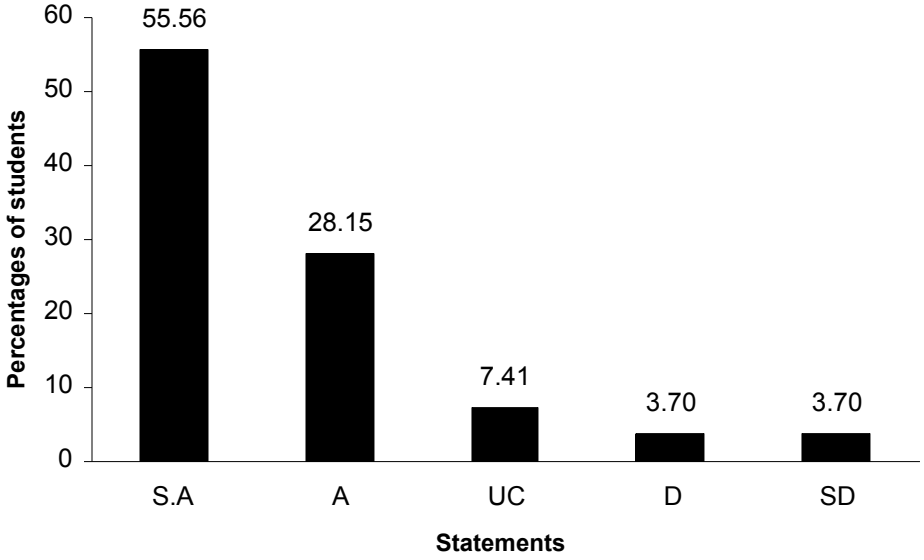
Approximate level of your own attendance during the whole Course



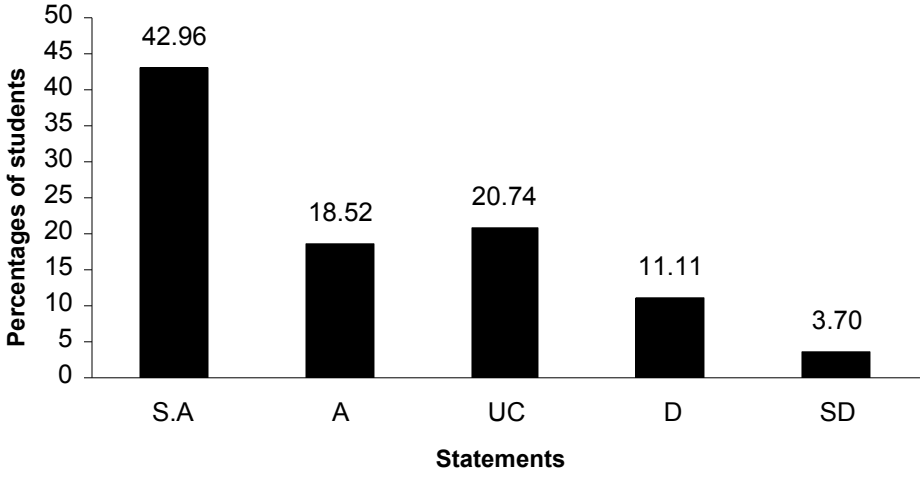
I participated actively in the Course



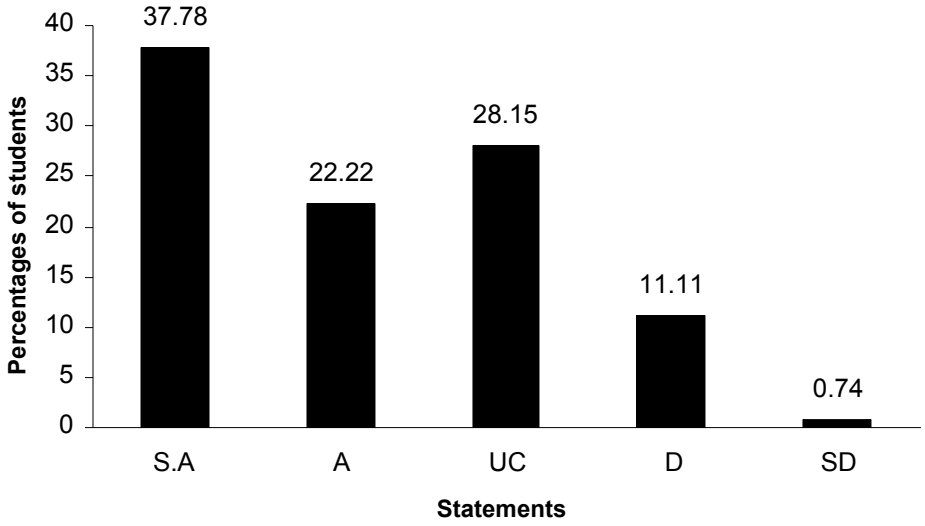
I think I have made progress in this Course



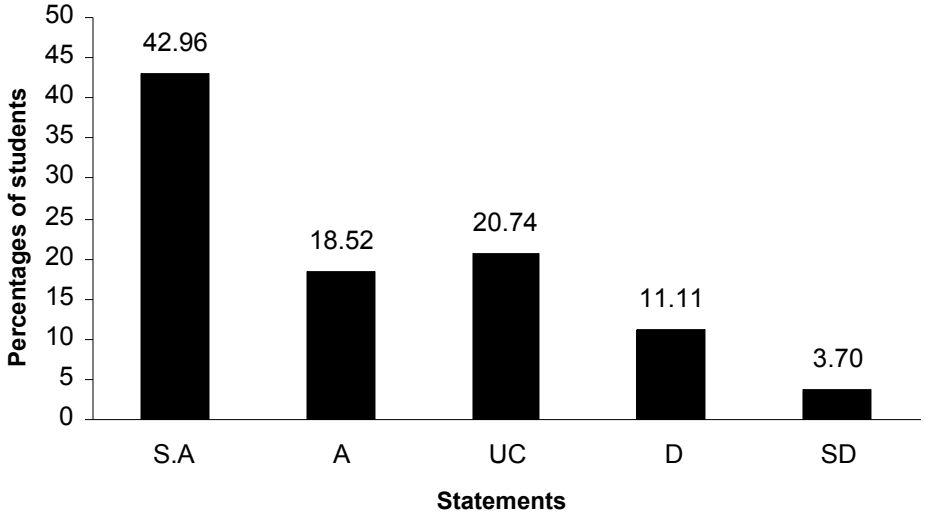
I think the Course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.)



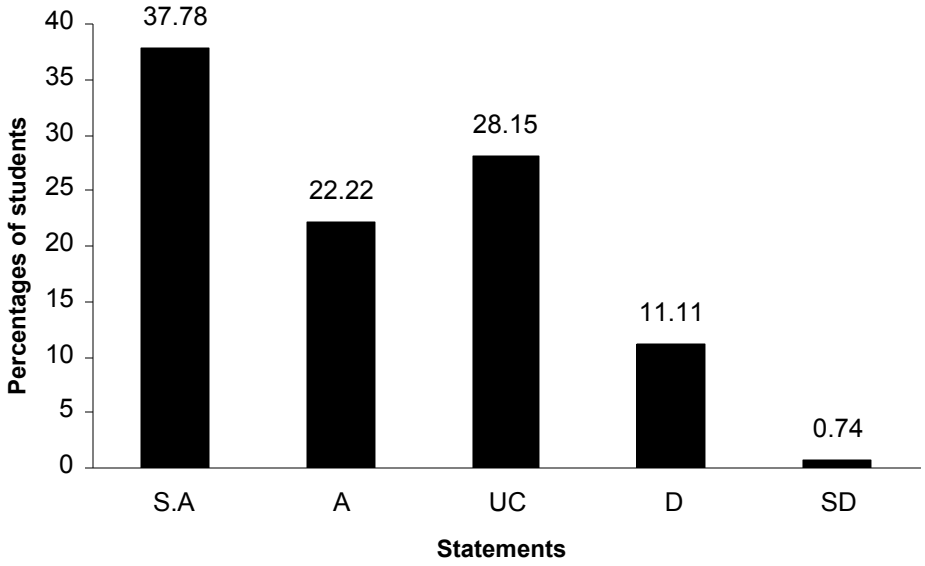
The learning and teaching methods encouraged participation



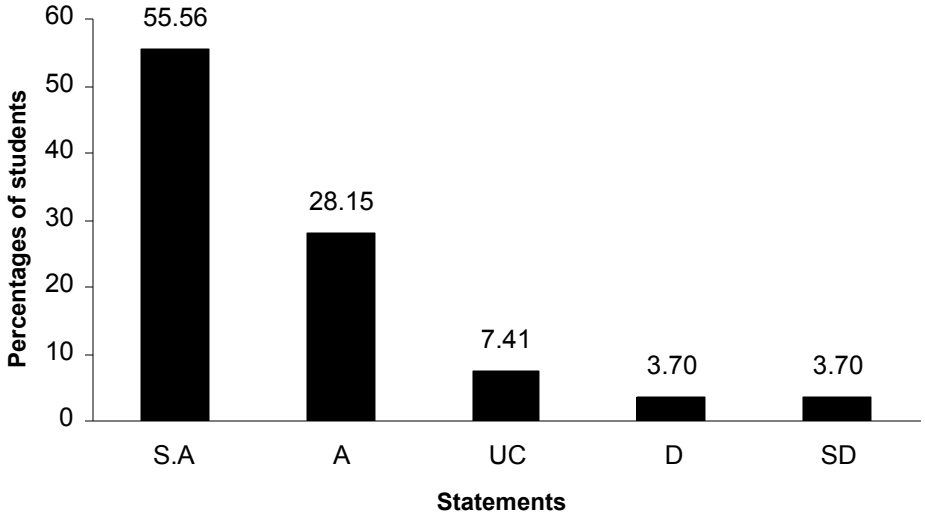
The overall environment in the class was conductive to learning



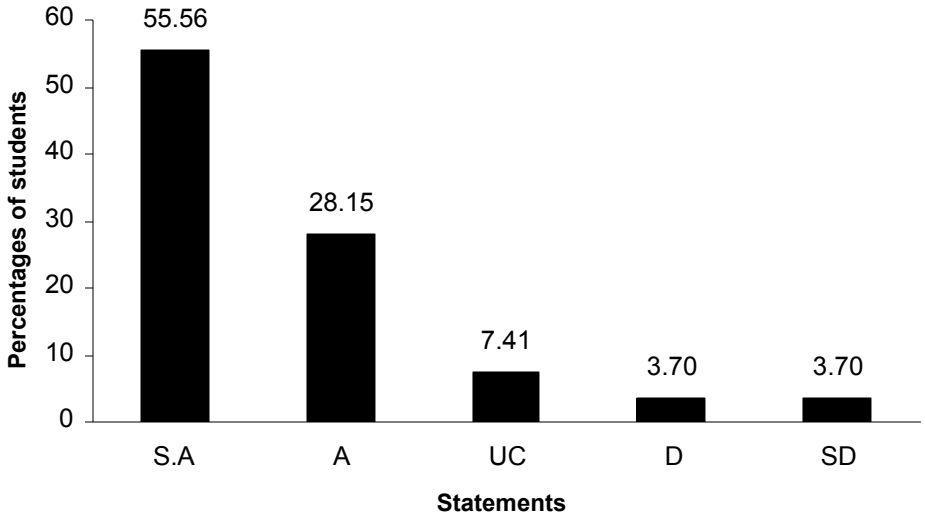
Classrooms were satisfactory



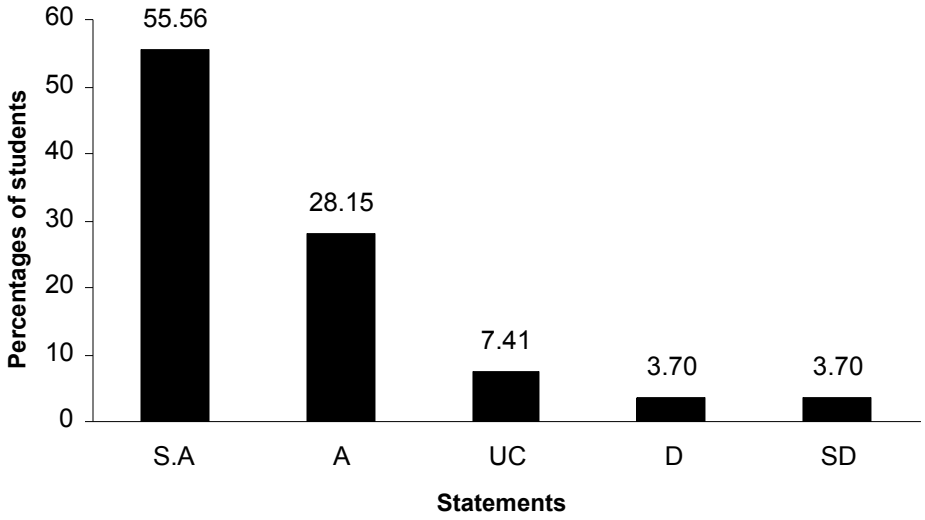
Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful



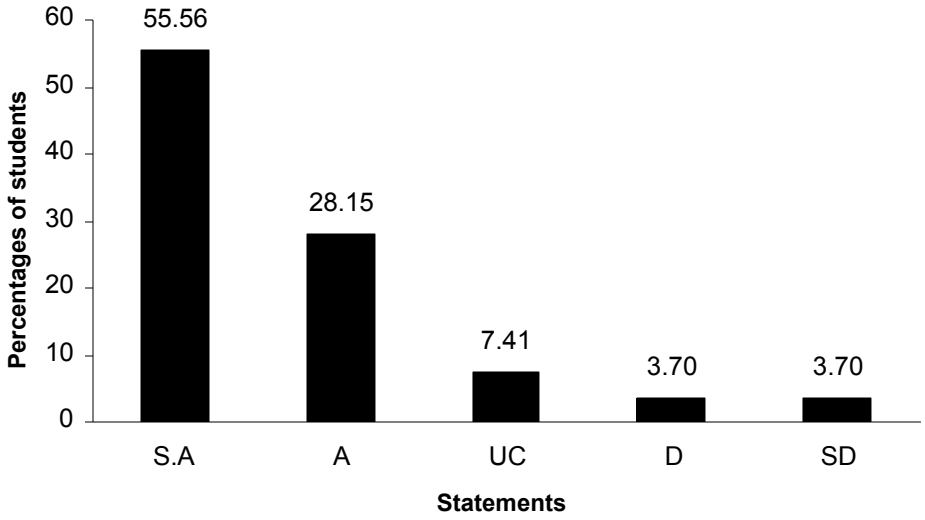
Recommended reading Books etc. were relevant and appropriate



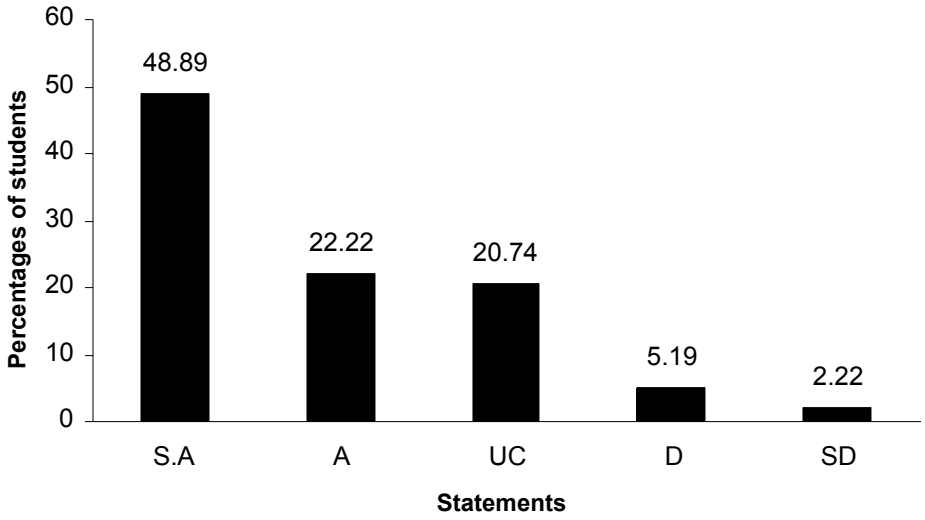
The provision of learning resources in the library was adequate and appropriate



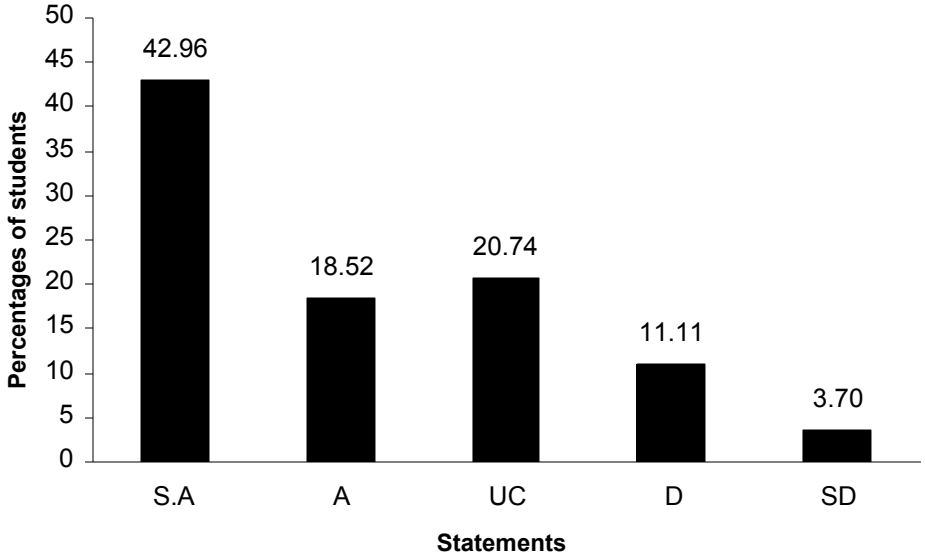
The provision of learning resources on the Web was adequate and appropriate (if relevant)



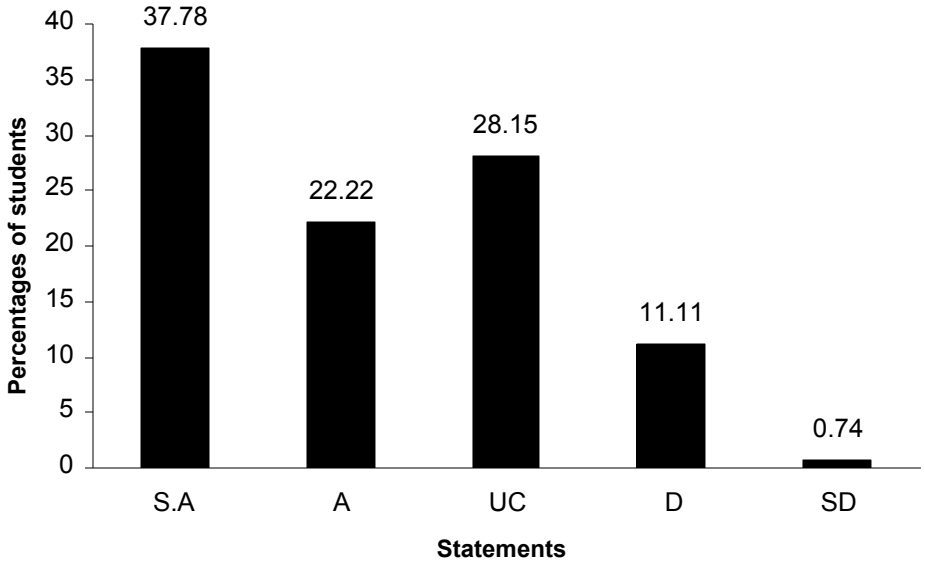
The Course stimulated my interest and thought on the subject area

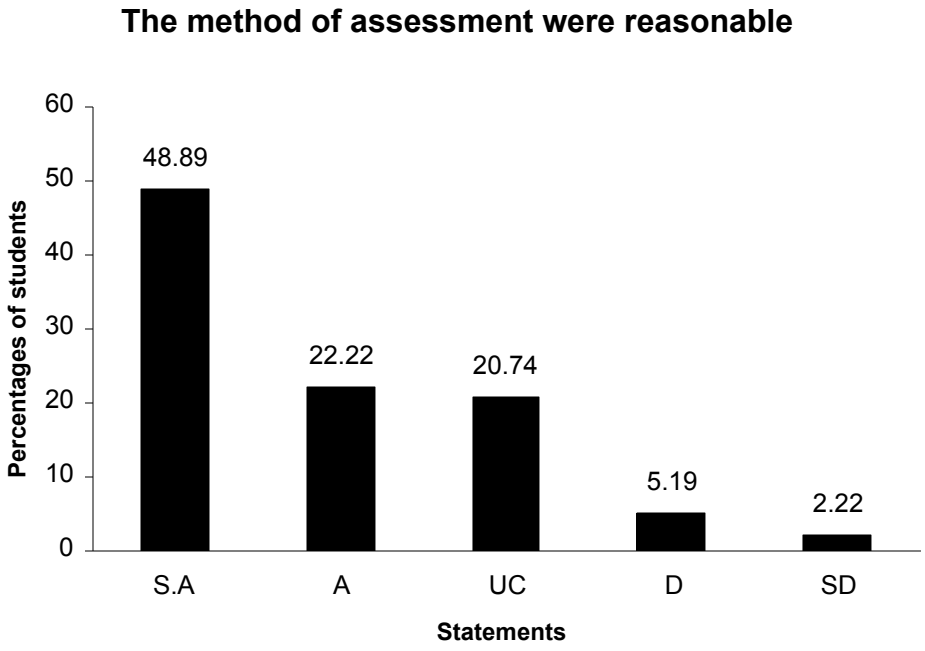


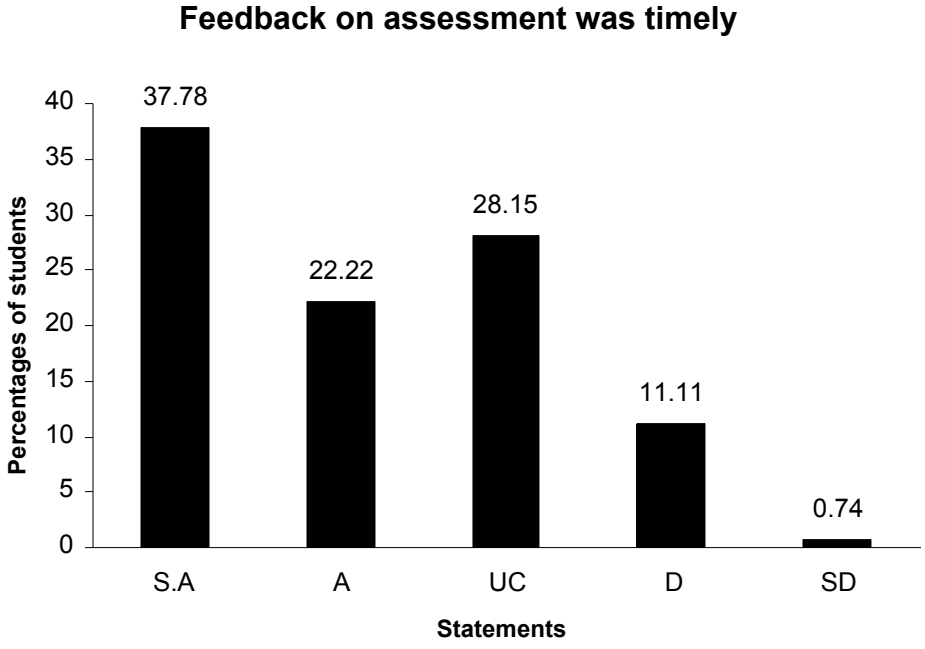
The pace of the Course was appropriate

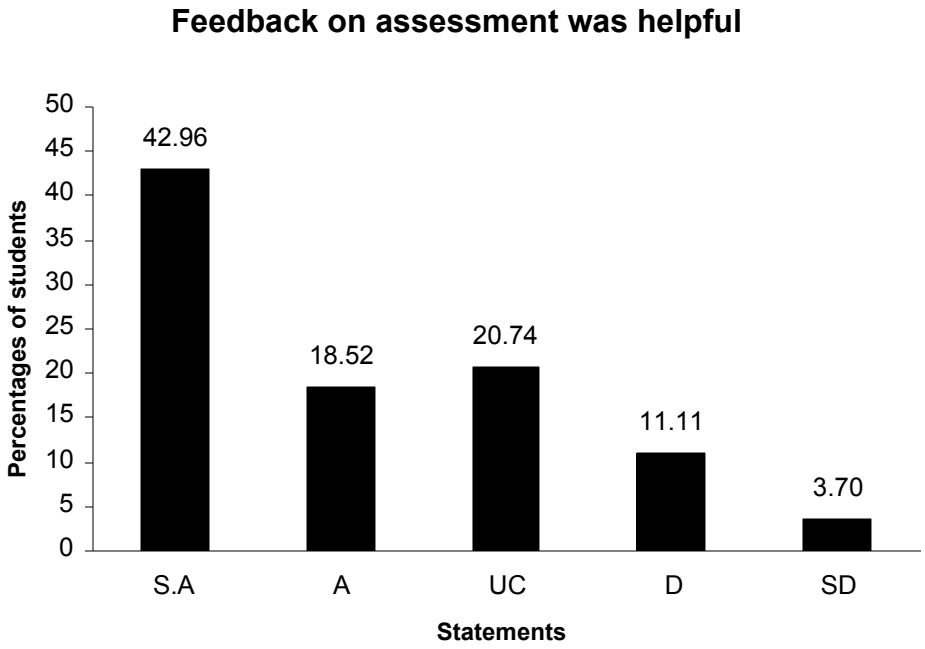


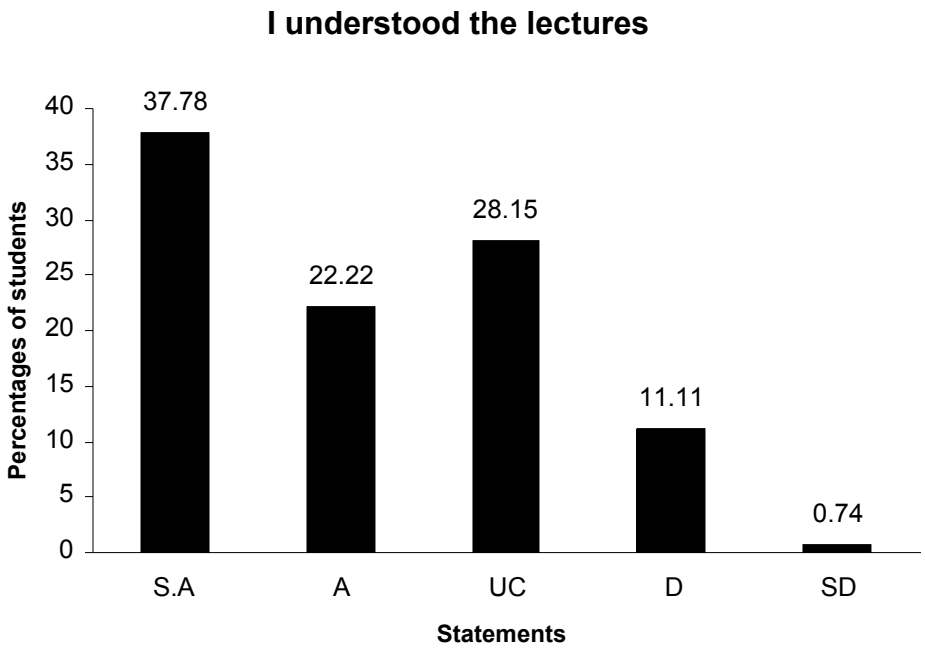
Ideas and concepts were presented clearly



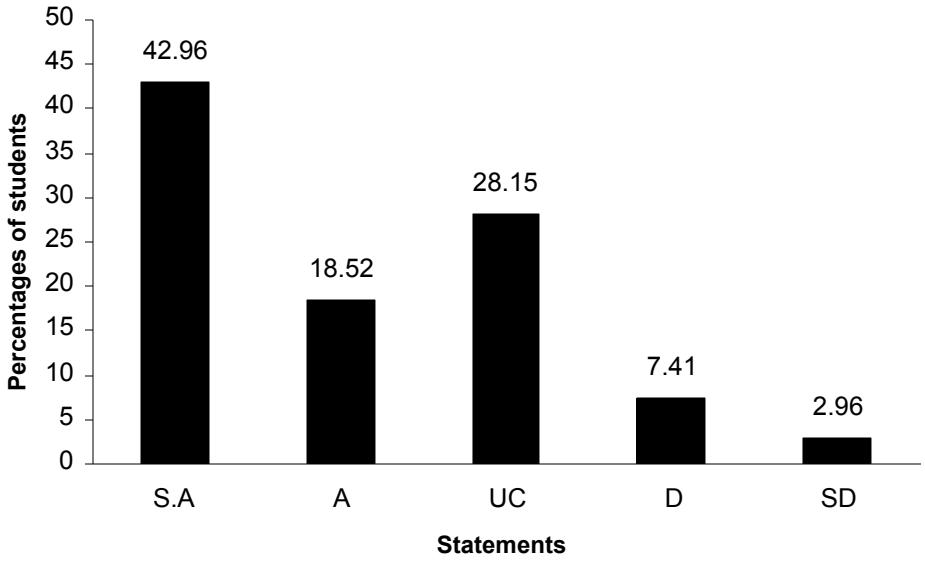

The method of assessment were reasonable
60
50
40
30
20
10
0
Percentages of students
48.89
22.22
20.74
5.19
2.22
S.A
A
UC
D
SD
Statements


Feedback on assessment was timely
40
35
30
25
20
15
10
5
0
Percentages of students
37.78
22.22
28.15
11.11
0.74
S.A
A
UC
D
SD
Statements

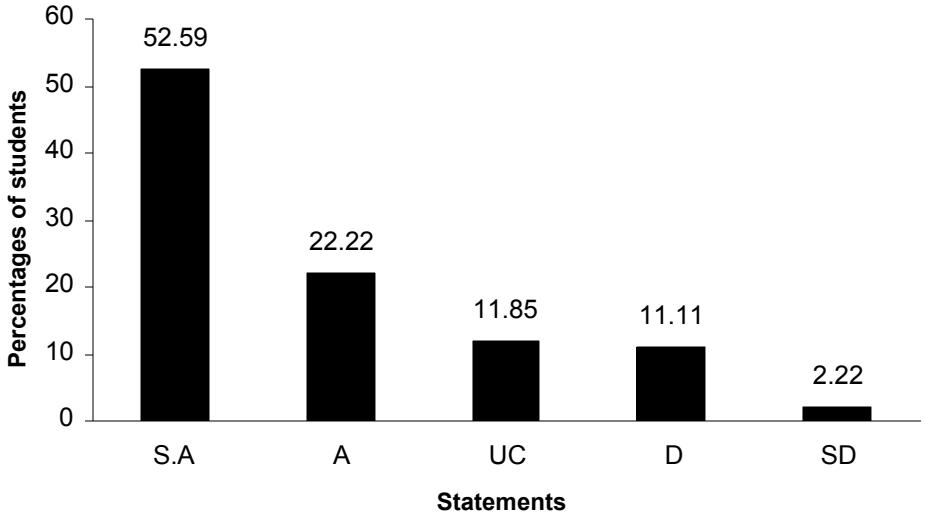

Feedback on assessment was helpful
Percentages of students
50
45
40
35
30
25
20
15
10
5
0
42.96
18.52
20.74
11.11
3.70
S.A
A
UC
D
SD
Statements


I understood the lectures
Percentages of students
40
35
30
25
20
15
10
5
0
37.78
22.22
28.15
11.11
0.74
S.A
A
UC
D
SD
Statements

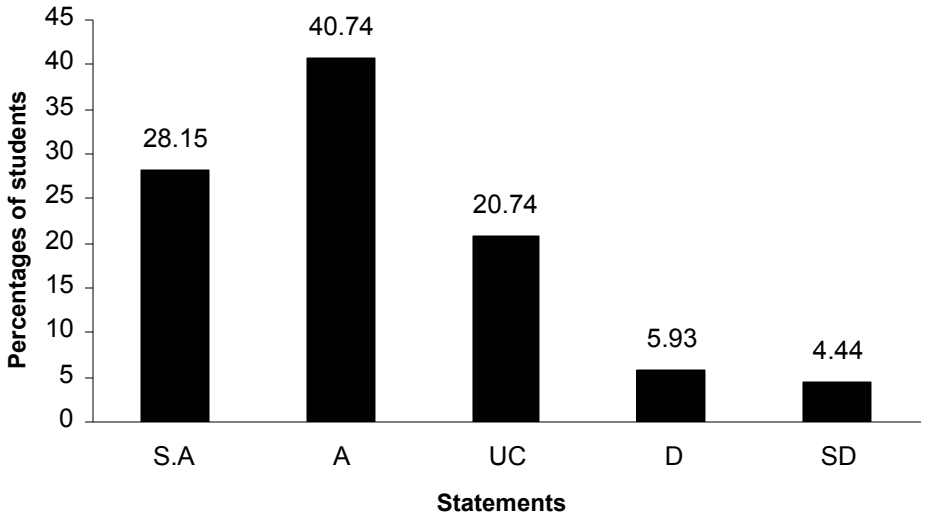
The material was well organized and presented



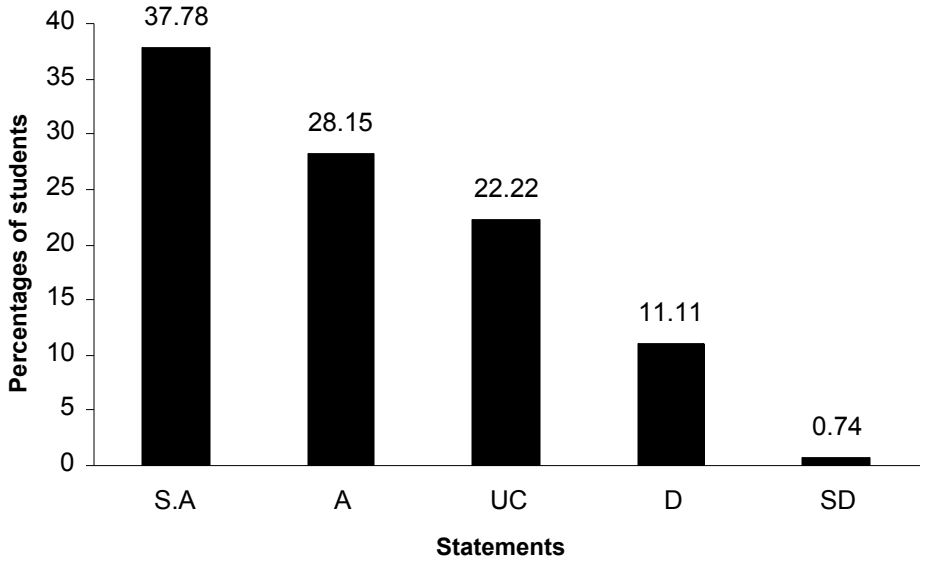
The instructor was responsive to student needs and problems



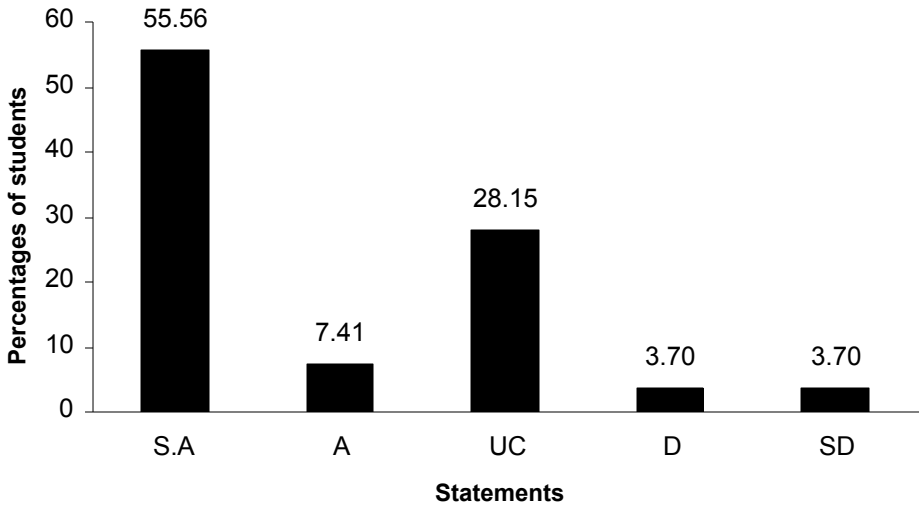
Had the instructor been regular throughout the course



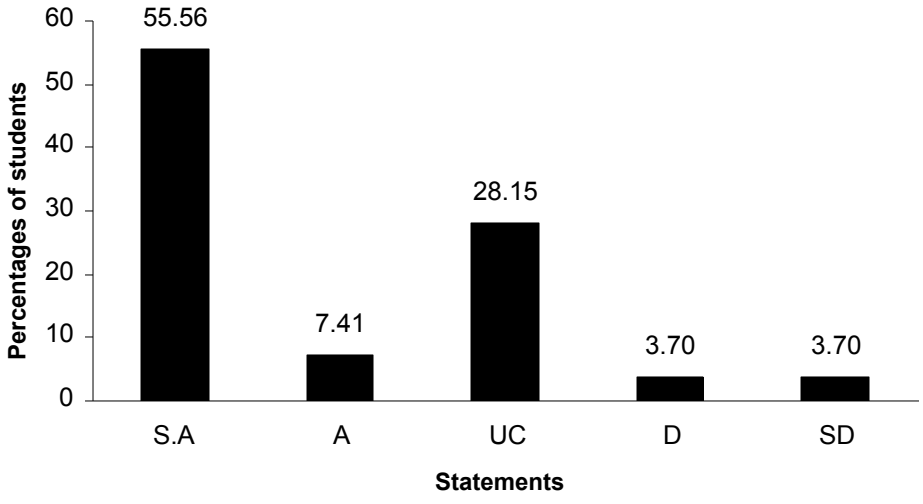
The Instructor is fair in examination



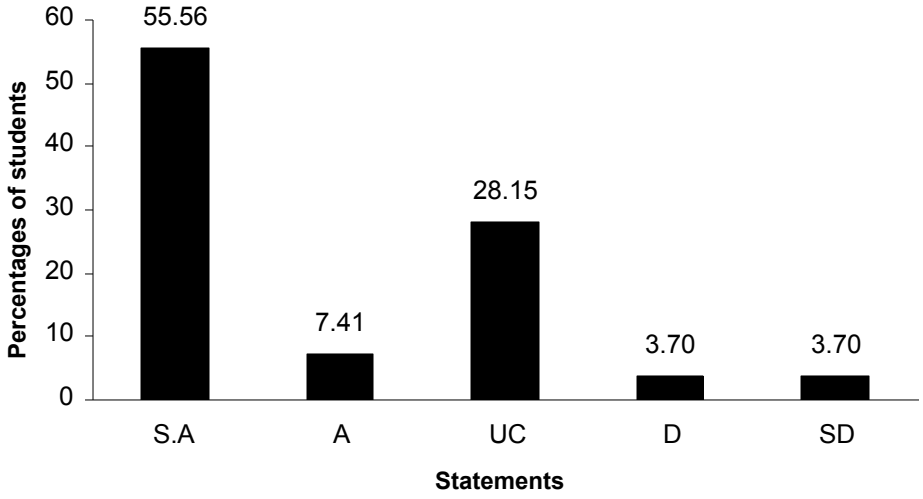
The Instructor is prepared for each class



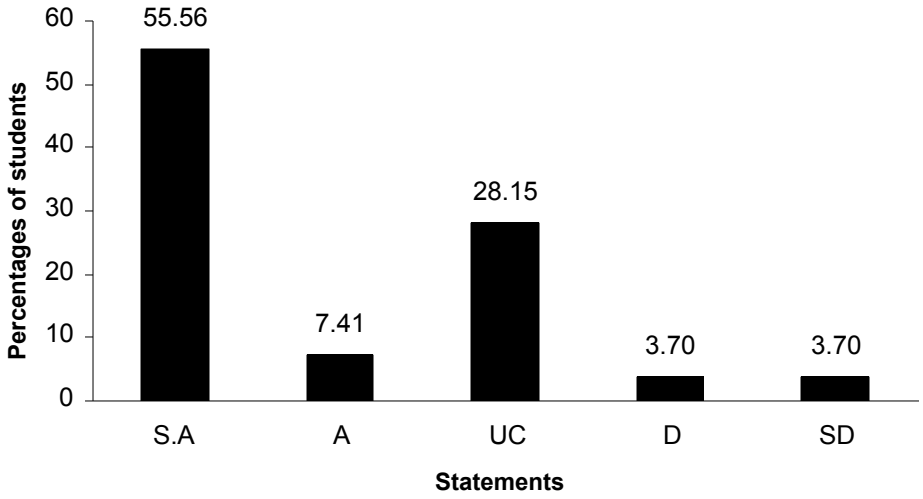
The Instructor maintains an environment that is conducive to learning

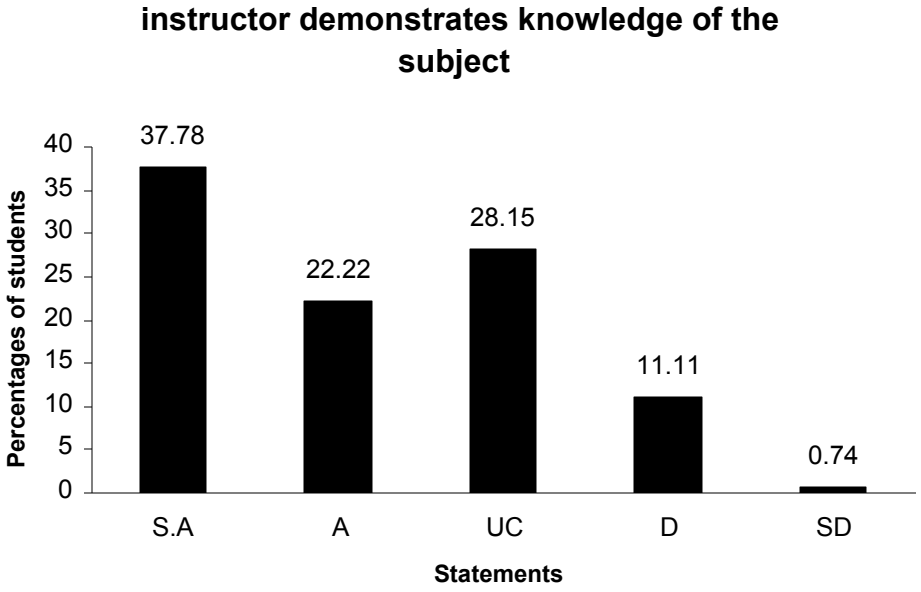


The Instructor gives citations regarding current situations with reference to Pakistani context



The Instructor maintains an environment that is conducive to learning

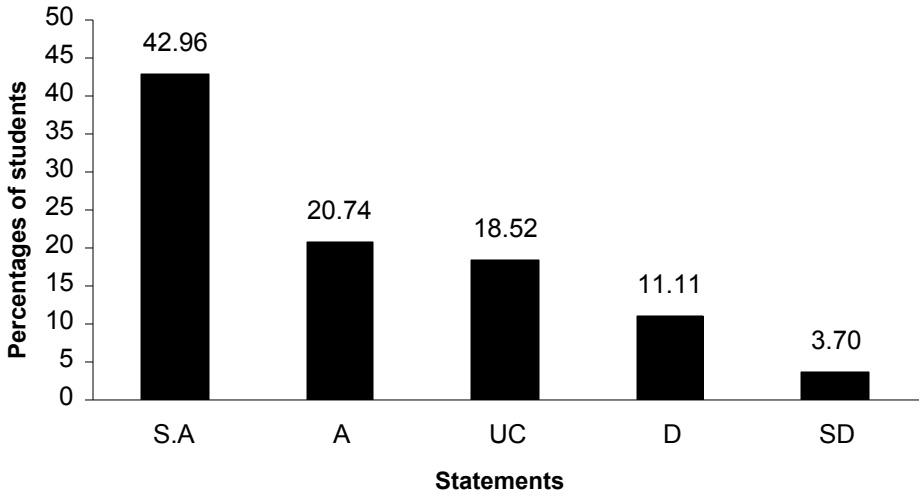



instructor demonstrates knowledge of the subject
Percentages of students
40
35
30
25
20
15
10
5
0
37.78
22.22
28.15
11.11
0.74
S.A
A
UC
D
SD
Statements

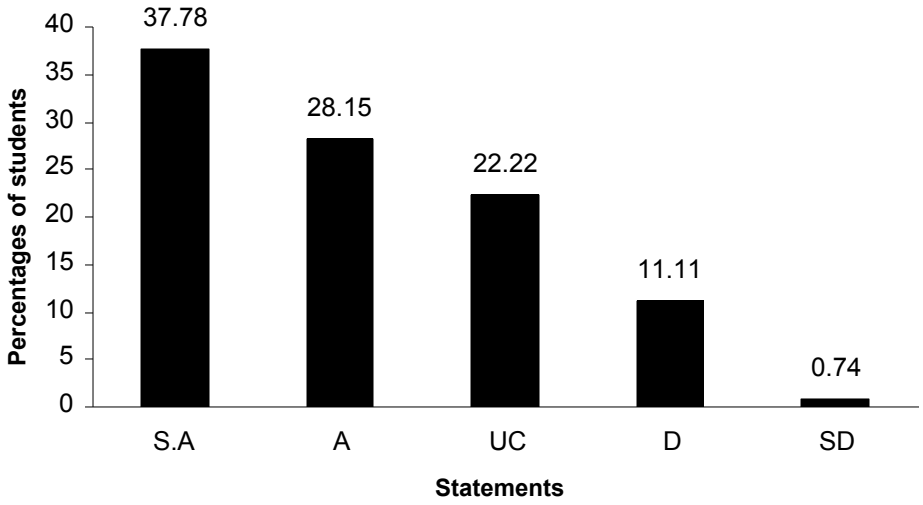
Dr. Shamim Akhtar Teacher Evaluation

Data were collected from 65 students. Data shows that the students are strongly agreed (42.96%) that the teacher is fair in examination. More than 37% of the students are strongly agreed that the instructor came with good preparation. Similarly, most of the students agreed that instructor demonstrates knowledge of the subject, instructor has completed the whole course, the Instructor provides additional material apart from the textbook, the Instructor gives citations regarding current situations with reference to Pakistani context, the Instructor communicates the subject matter, the Instructor shows respect towards students and encourages class participation effectively, the Instructor maintains an environment that is conducive to learning, the Instructor arrives on time, the Instructor returns the graded scripts etc. in a reasonable amount of time, the Instructor was available during the specified office hours and for after class consultations, the Subject matter presented in the course has increased your knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated

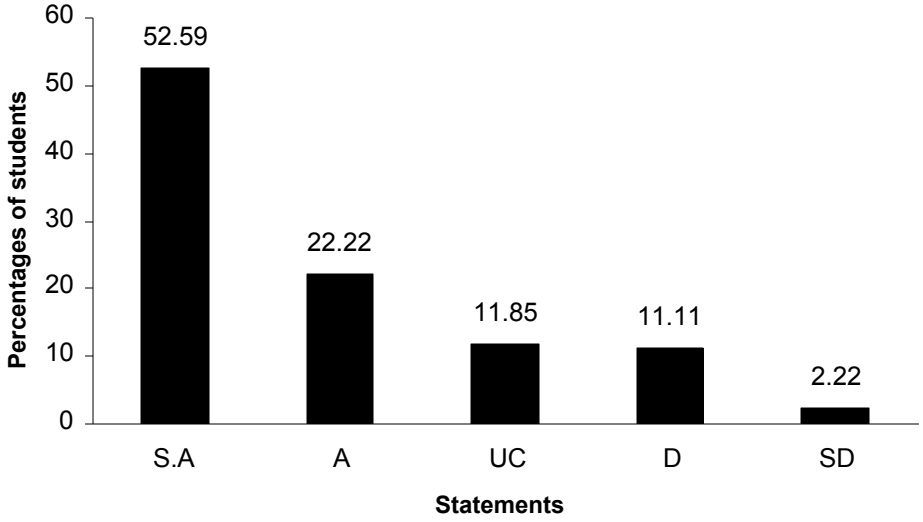
The Instructor was available during the specified office hours and for after class consultations



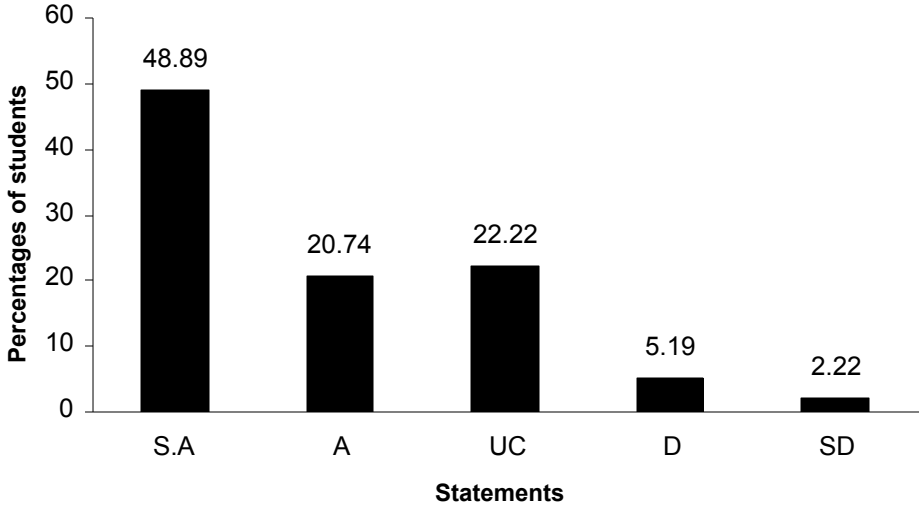
The assignments and exams covered the materials presented in the course



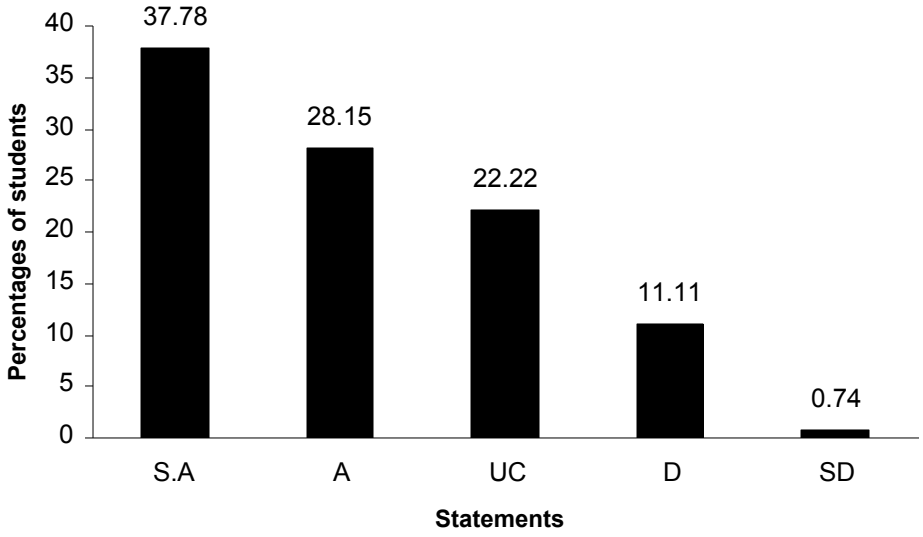
. The Instructor has completed the whole course



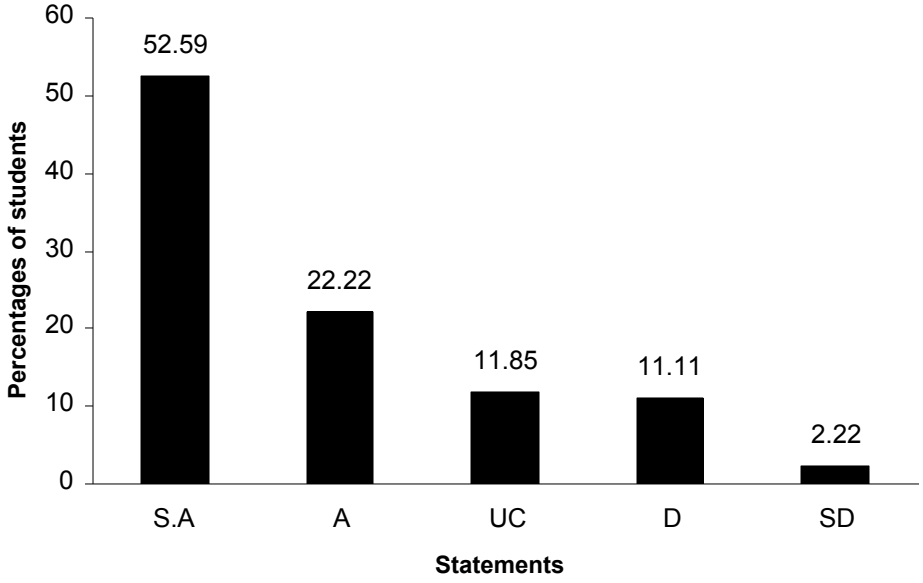
The Instructor provides additional material apart from the textbook



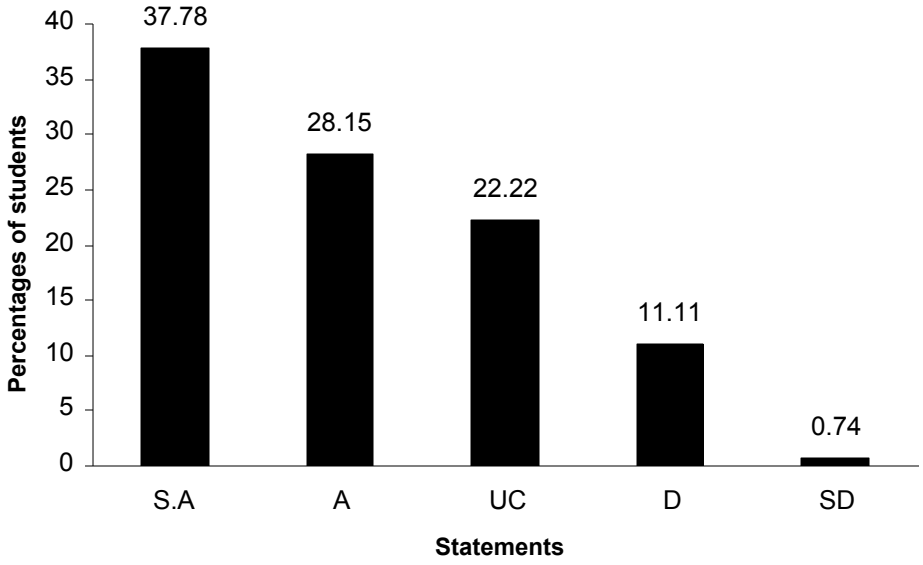
The Instructor communicates the subject matter effectively



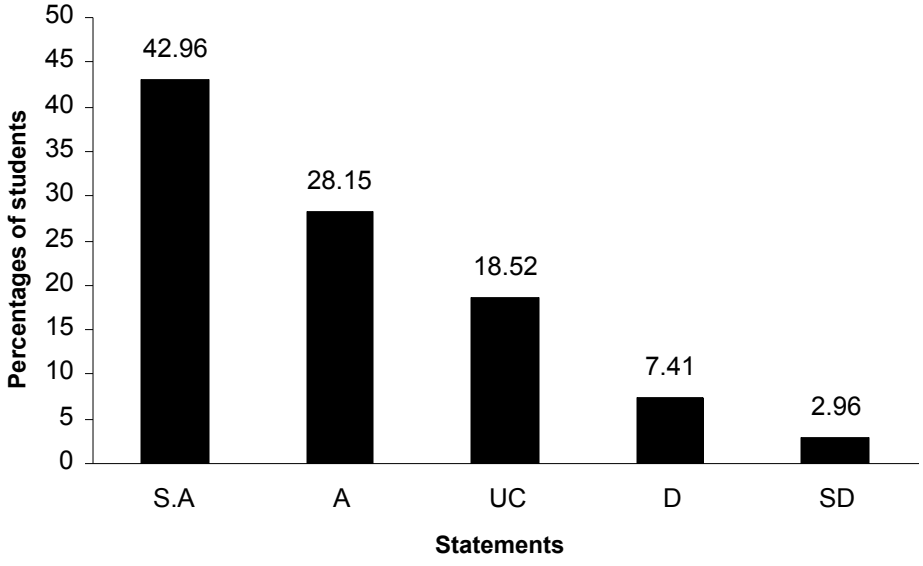
The Instructor shows respect towards students and encourages class participation



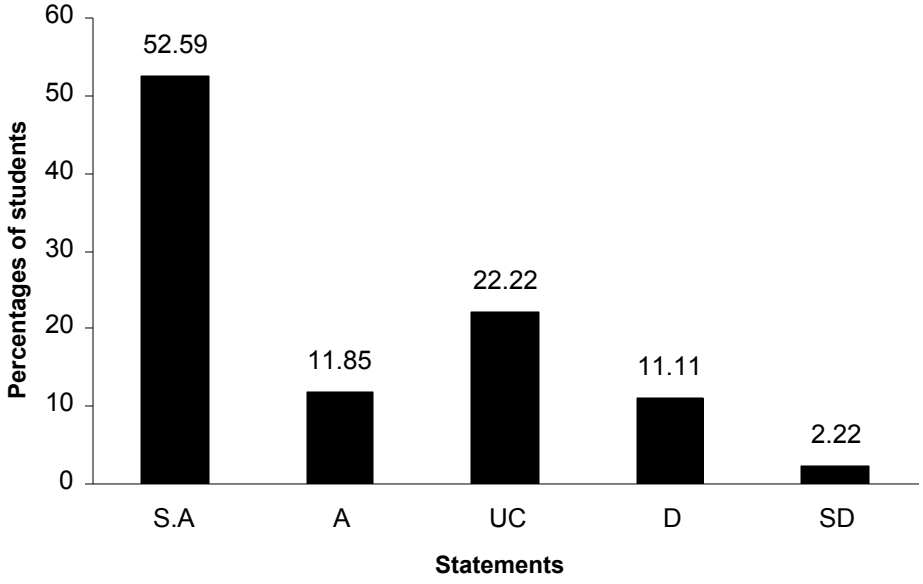
The Instructor arrives on time



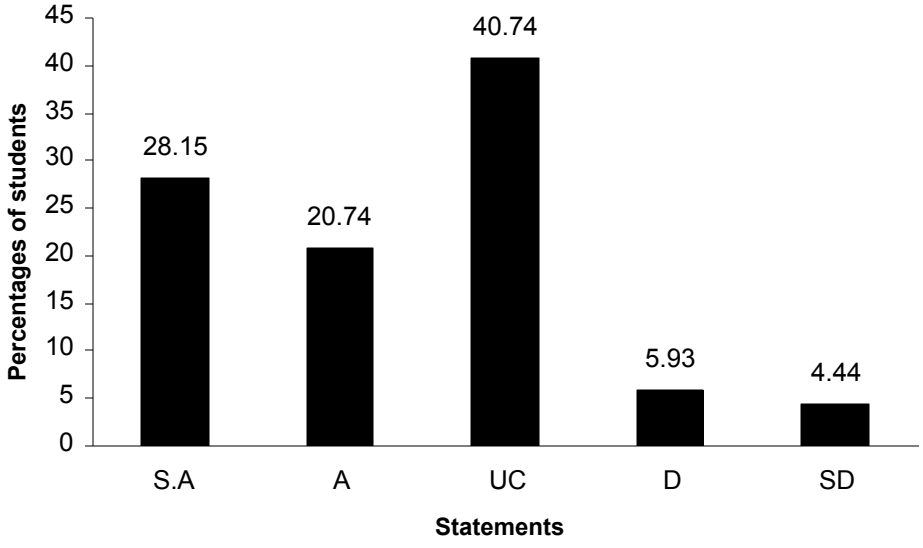
The Instructor returns the graded scripts etc. in a reasonable amount of time



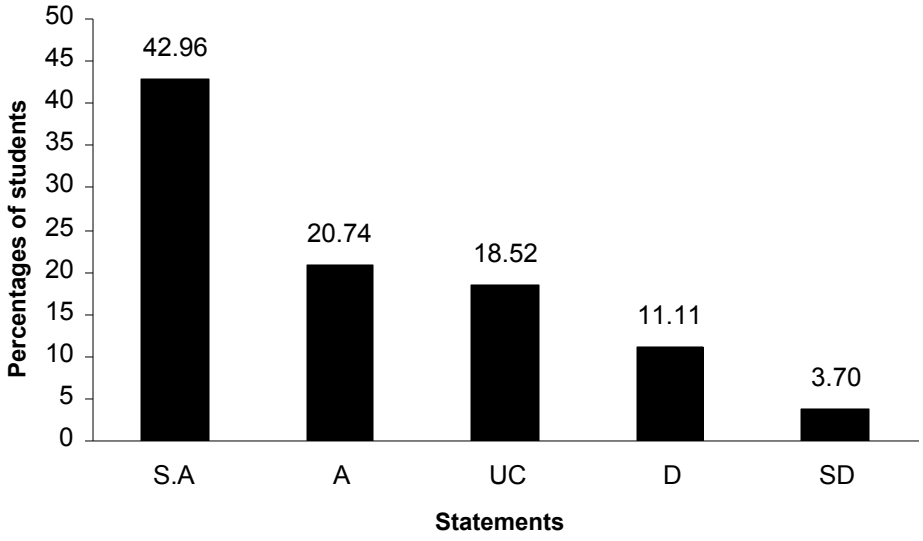
The Subject matter presented in the course has increased your knowledge of the subject



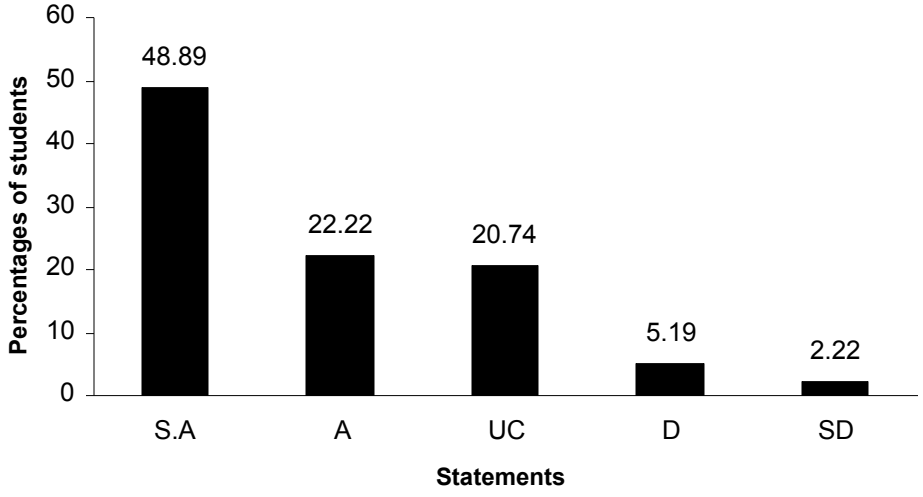
The course integrates theoretical course concepts with real-world applications



The course material is modern and updated



The syllabus clearly states course objectives requirements, procedures and grading criteria

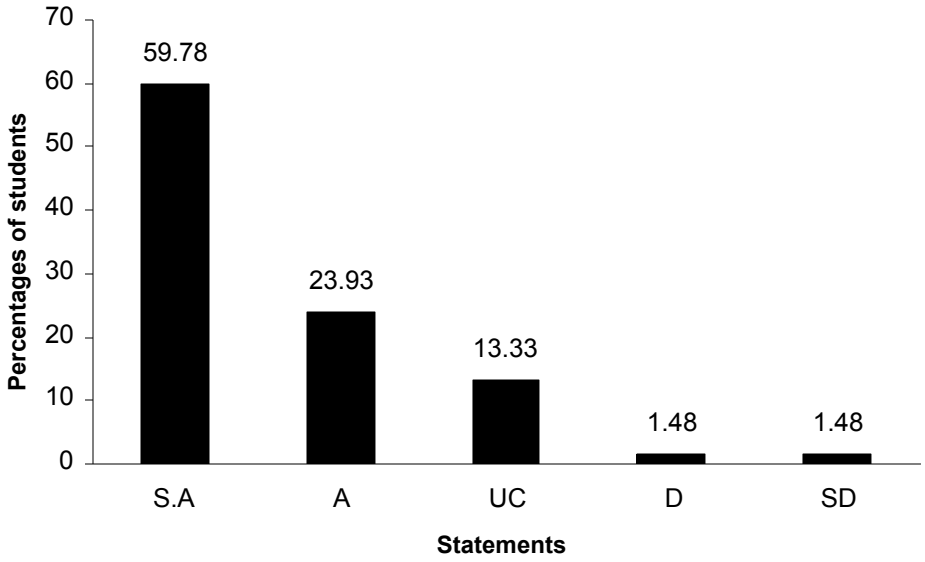


Course Evaluation

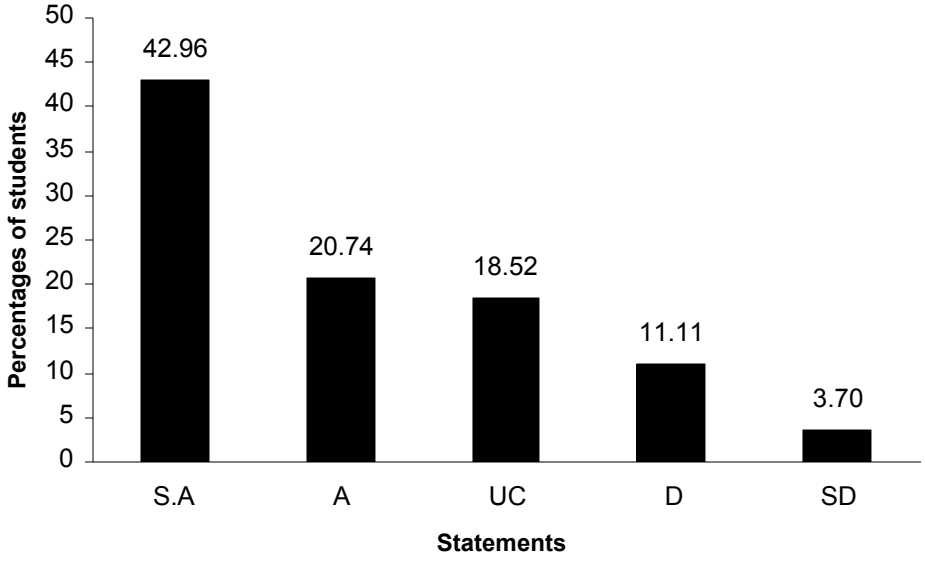
ZOOL-718	Applied Reproductive Physiology	3(2-2)	Dr. Shamim Akhter/ Dr. Nemat Ullah

Data were collected from 70 students. Data shows that the students are strongly agreed (59.78%) that the course objectives were clear. More than 42% of the students are strongly agreed that the course workload was manageable, well organized (e.g. timely access to materials, notification of changes, etc.). The students are strongly agreed that the approximate level of student's attendance during the whole course was higher; students participated actively in the course and have made progress in this course. Most of the students think the course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.). Similarly, they are agreed that the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials (Lesson Plans, Course Notes etc.) were relevant and useful, recommended reading books etc. were relevant and appropriate. They described that the provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area. According to most of the students, the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable, the material was well organized and presented, the instructor was responsive to student needs and problems, instructor was regular throughout the course and the material in the tutorials was useful

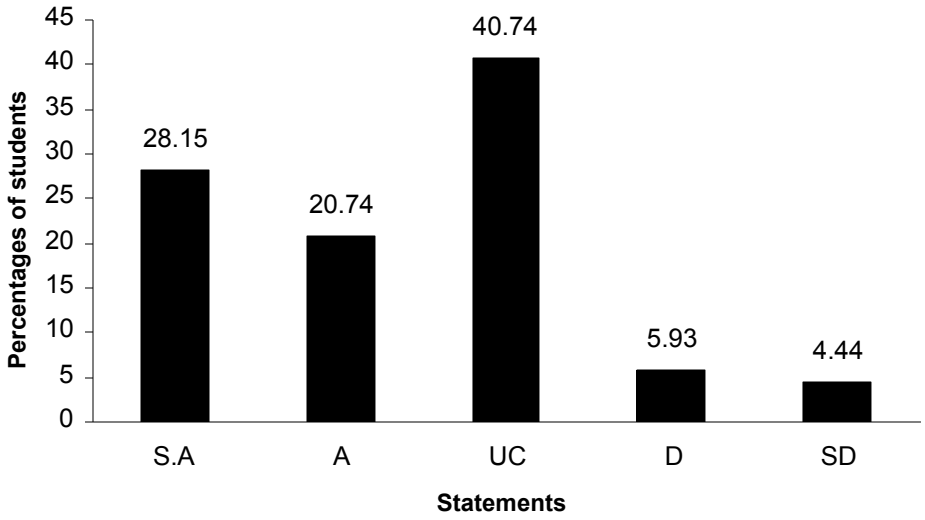
The Course objectives were clear



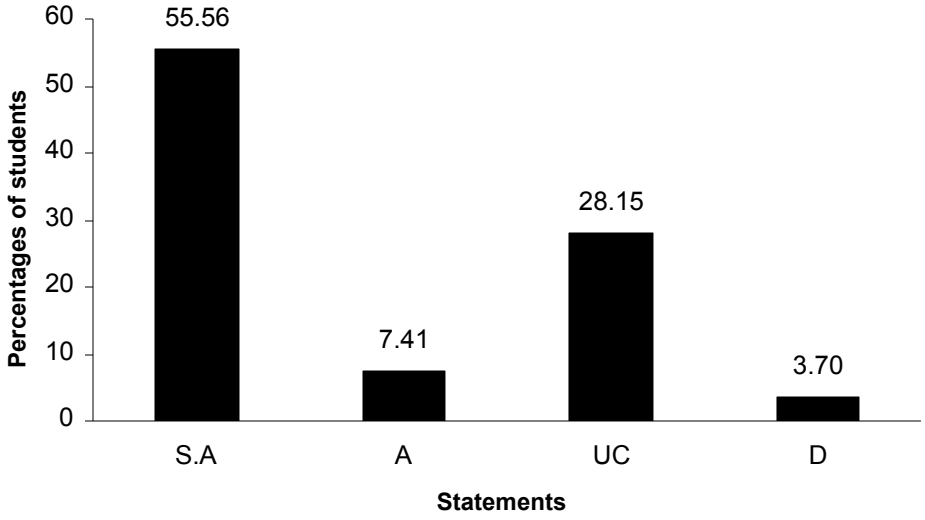
The Course workload was manageable

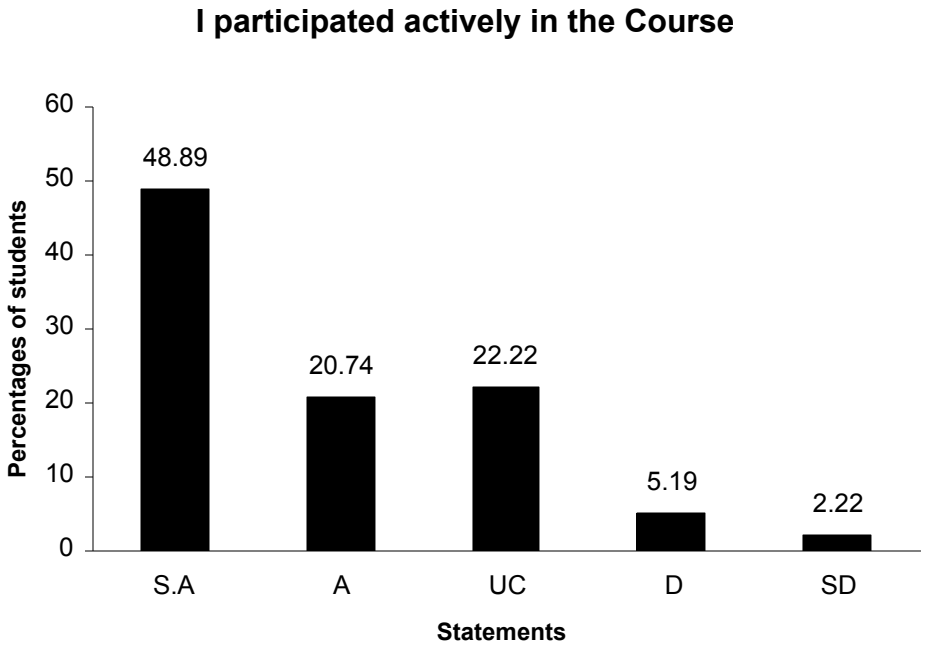


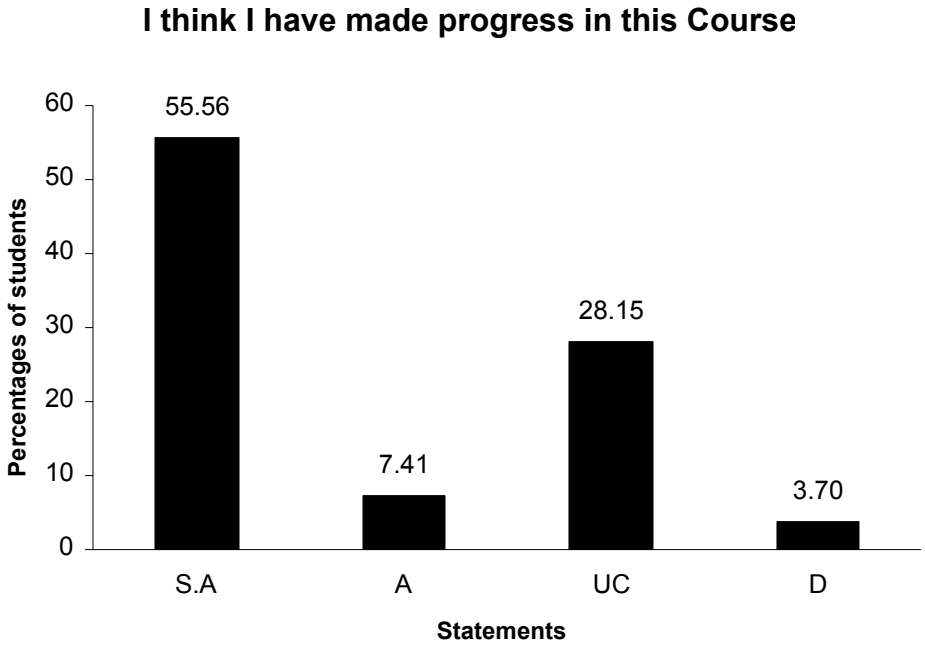
The Course was well organized (e.g. timely access to materials, notification of changes, etc.)



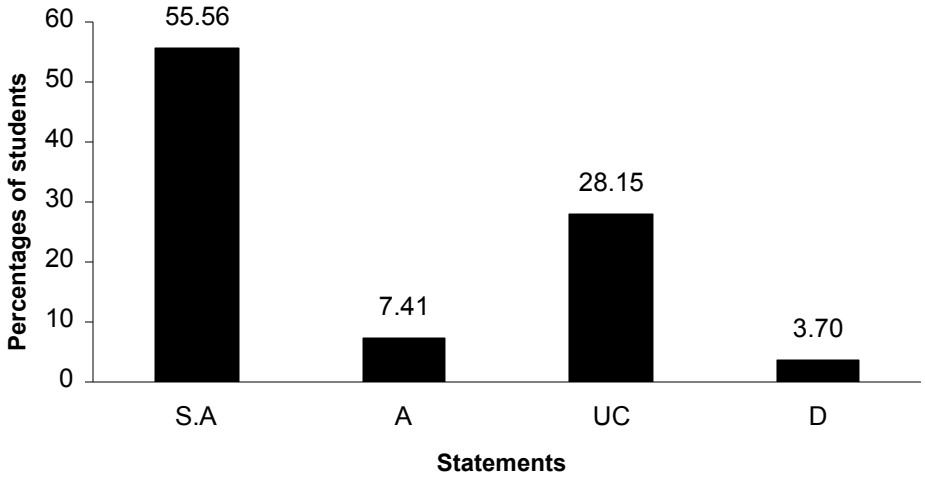
Approximate level of your own attendance during the whole Course



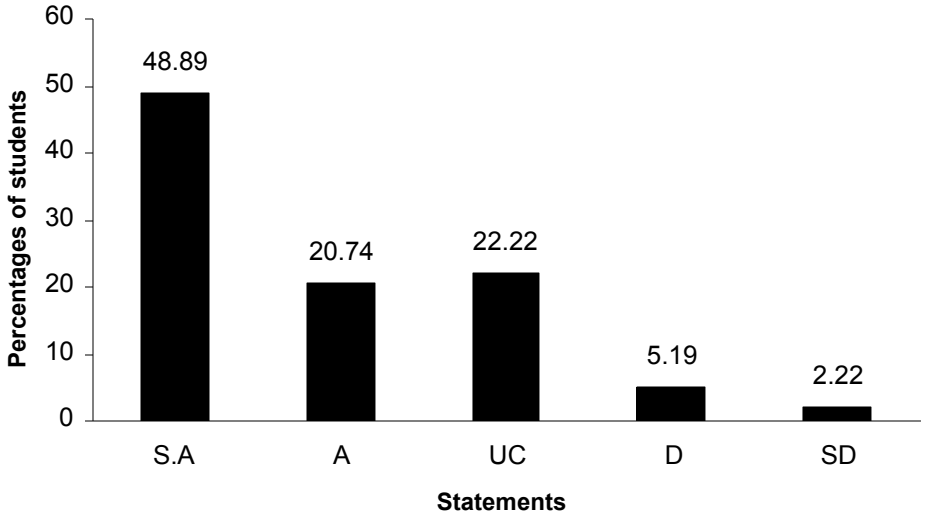

I participated actively in the Course
60
50
40
30
20
10
0
Percentages of students
48.89
20.74
22.22
5.19
2.22
S.A
A
UC
D
SD
Statements

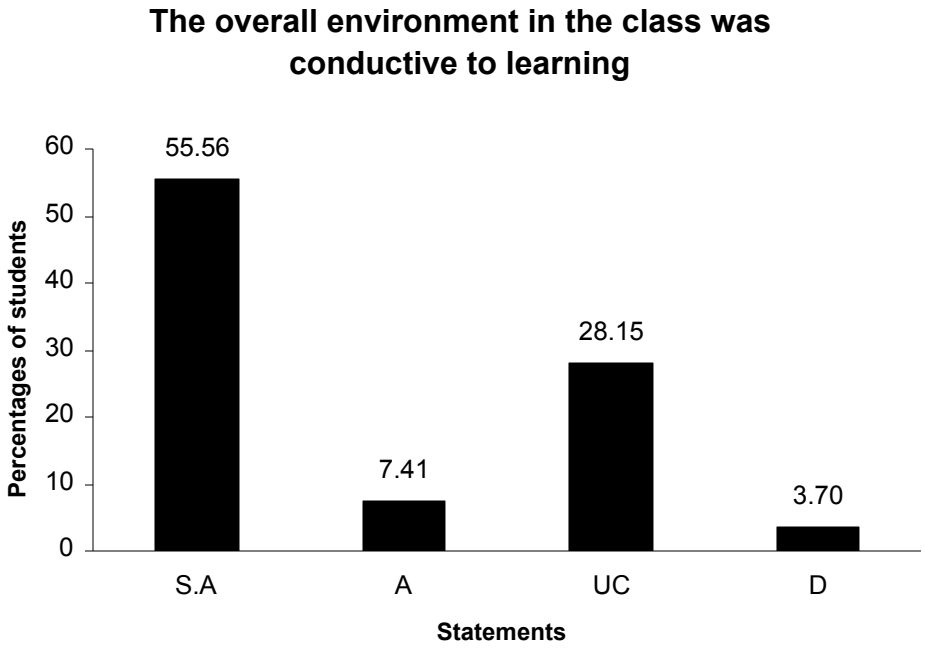

I think I have made progress in this Course
60
50
40
30
20
10
0
Percentages of students
55.56
7.41
28.15
3.70
S.A
A
UC
D
Statements

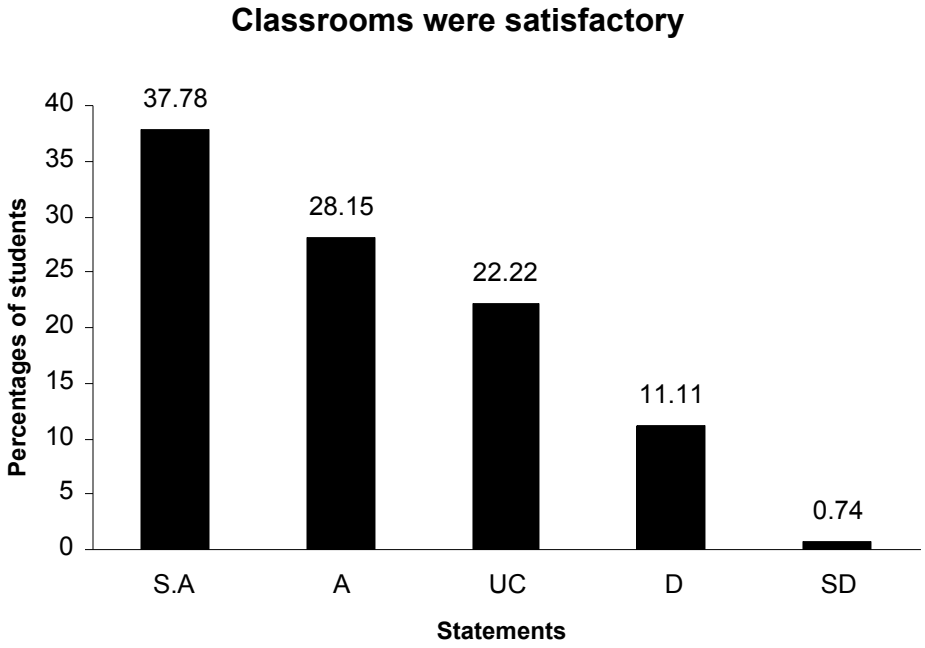
I think the Course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.)



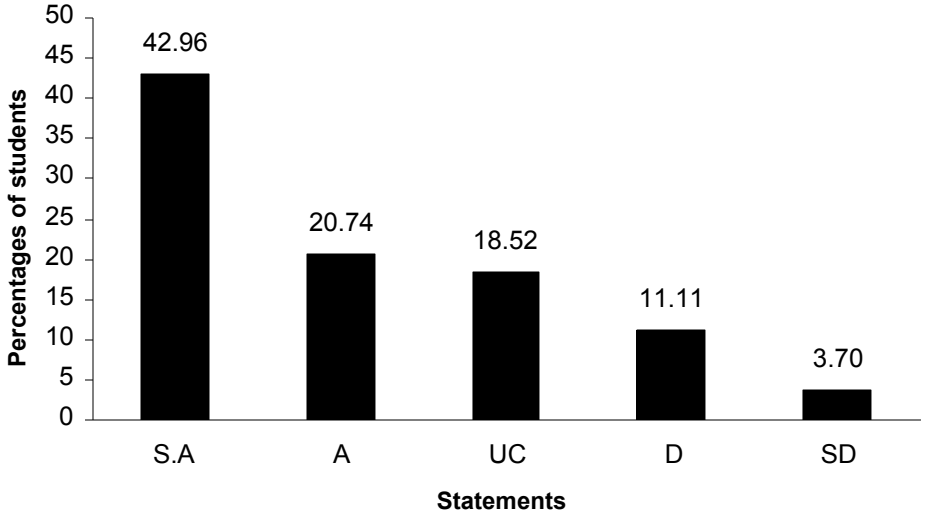
The learning and teaching methods encouraged participation



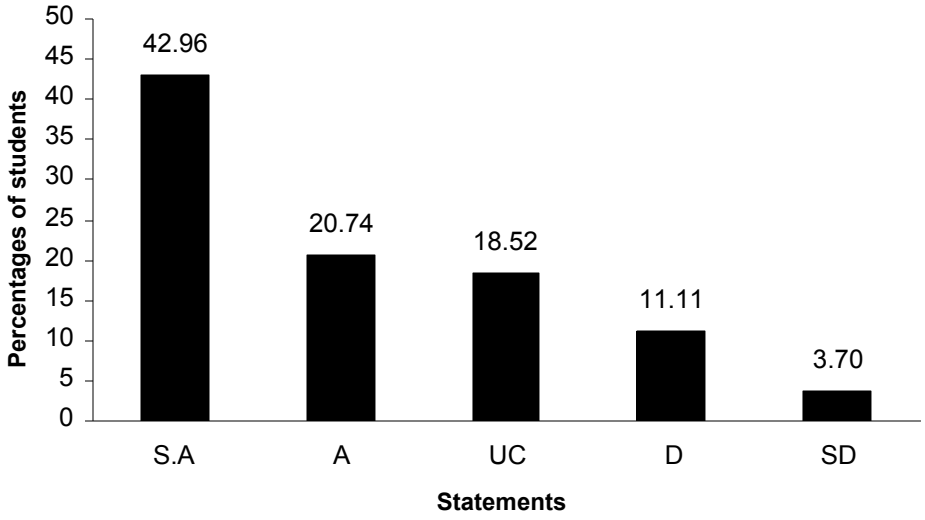

The overall environment in the class was conductive to learning
60
50
40
30
20
10
0
Percentages of students
55.56
7.41
28.15
3.70
S.A
A
UC
D
Statements


Classrooms were satisfactory
40
35
30
25
20
15
10
5
0
Percentages of students
37.78
28.15
22.22
11.11
0.74
S.A
A
UC
D
SD
Statements

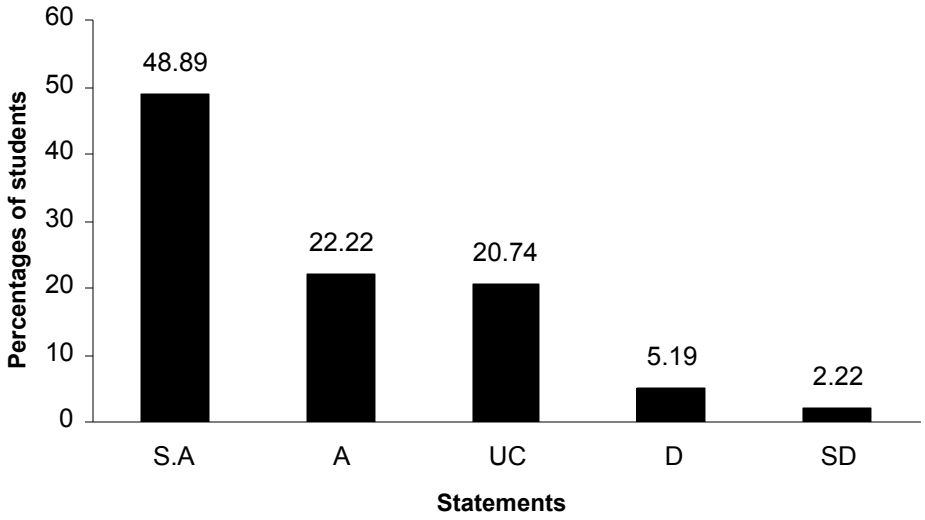
Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful



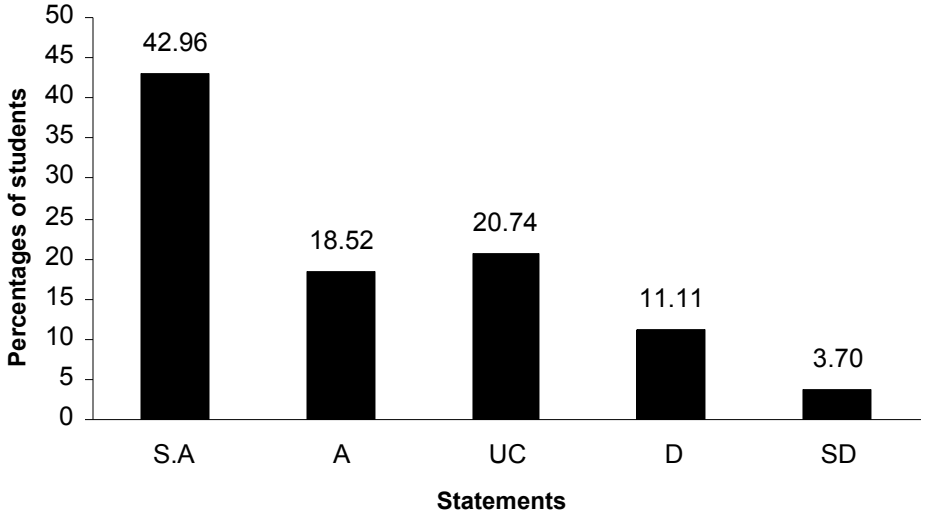
Recommended reading Books etc. were relevant and appropriate



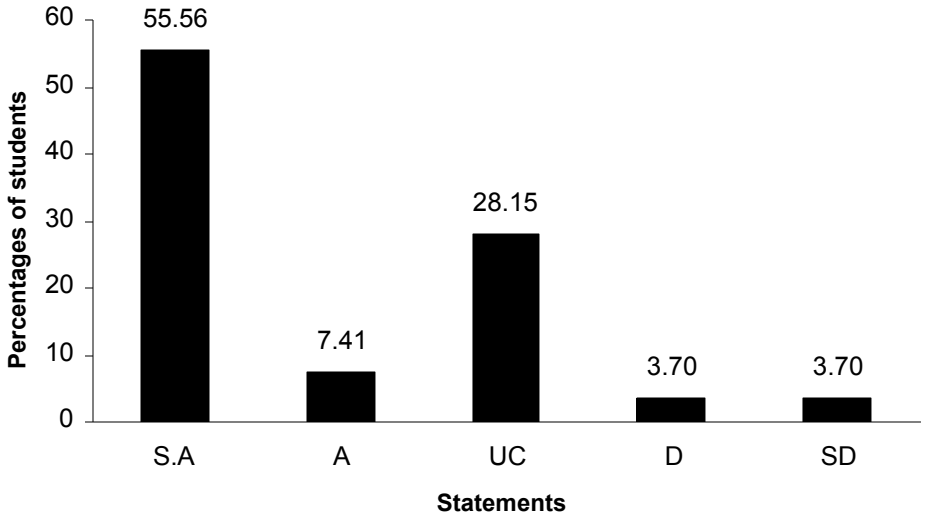
The provision of learning resources in the library was adequate and appropriate



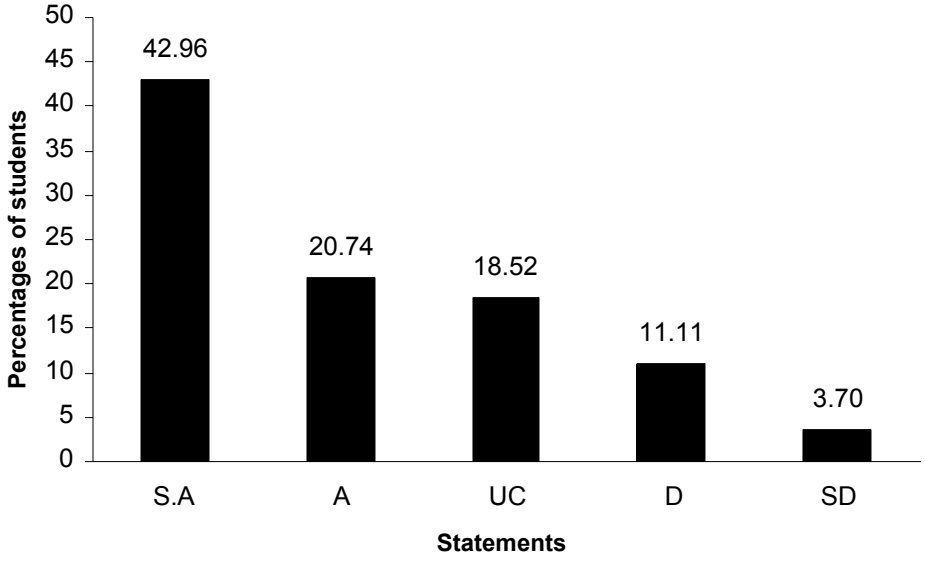
The provision of learning resources on the Web was adequate and appropriate (if relevant)



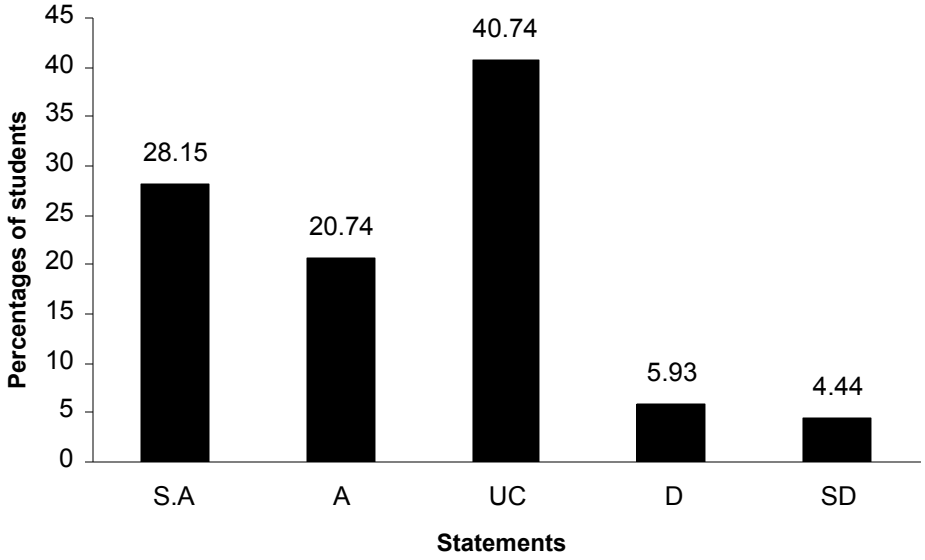
The Course stimulated my interest and thought on the subject area



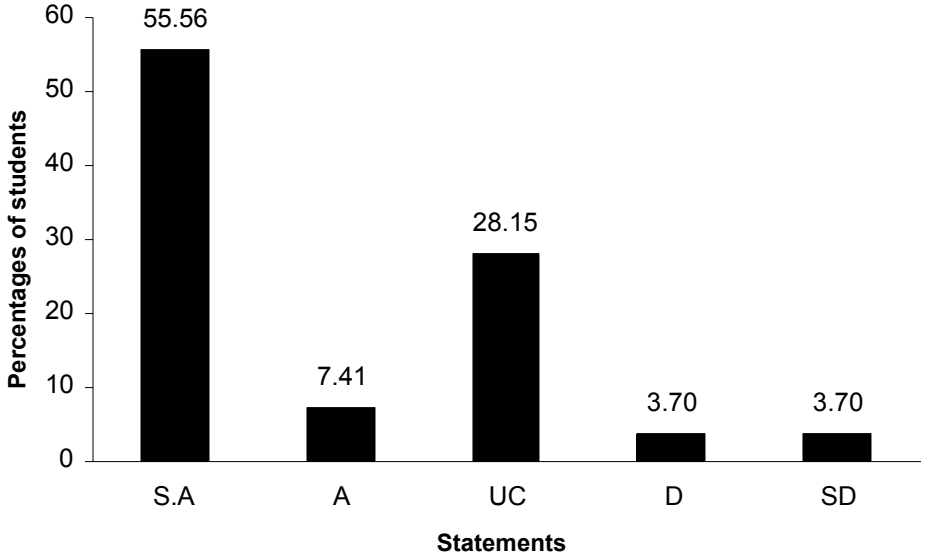
The pace of the Course was appropriate

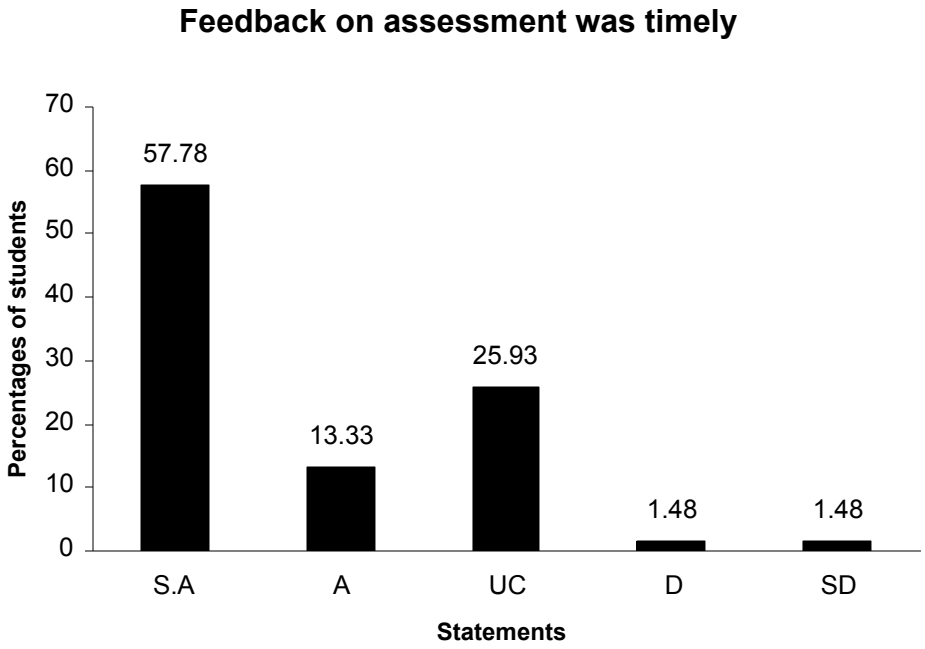


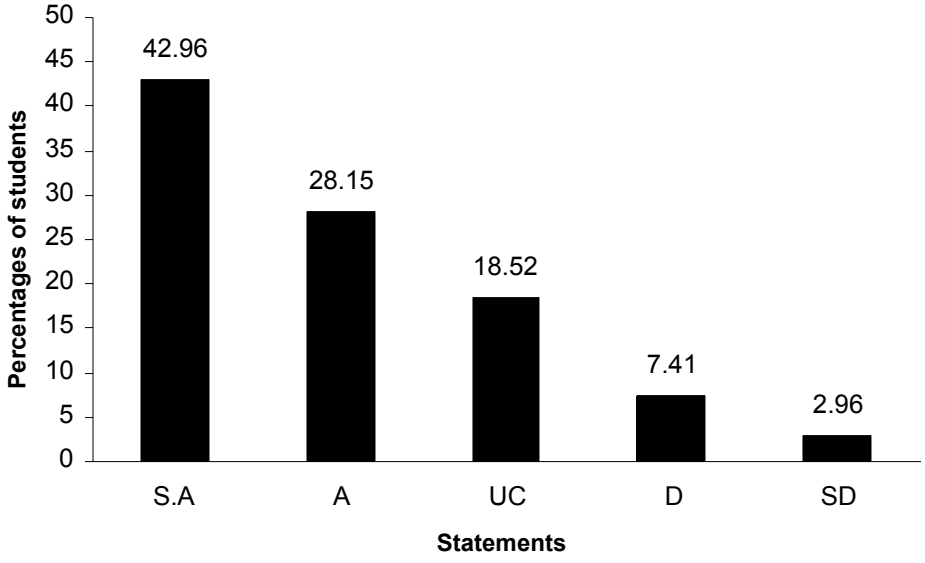
Ideas and concepts were presented clearly

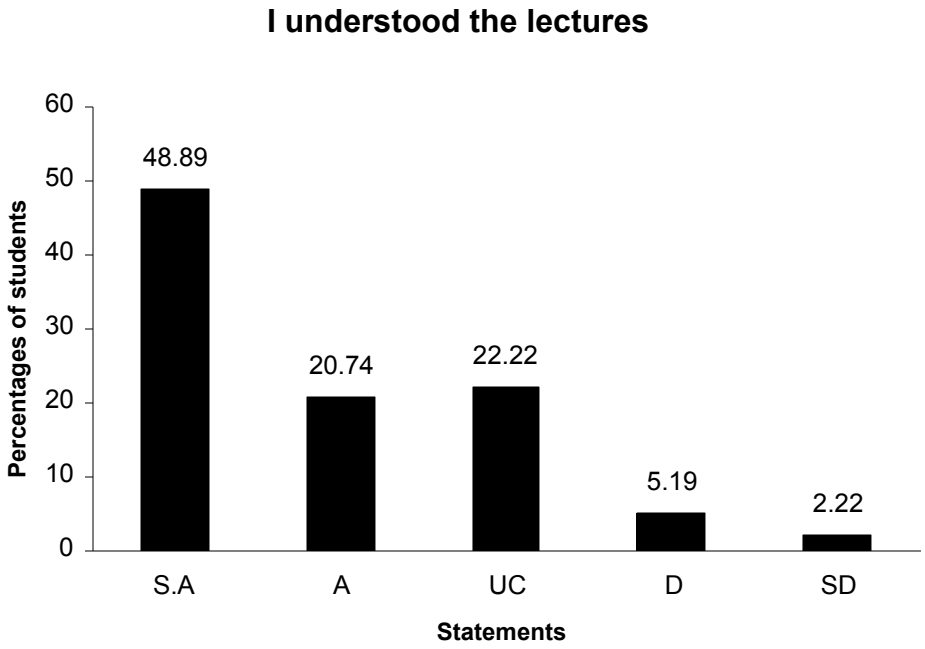


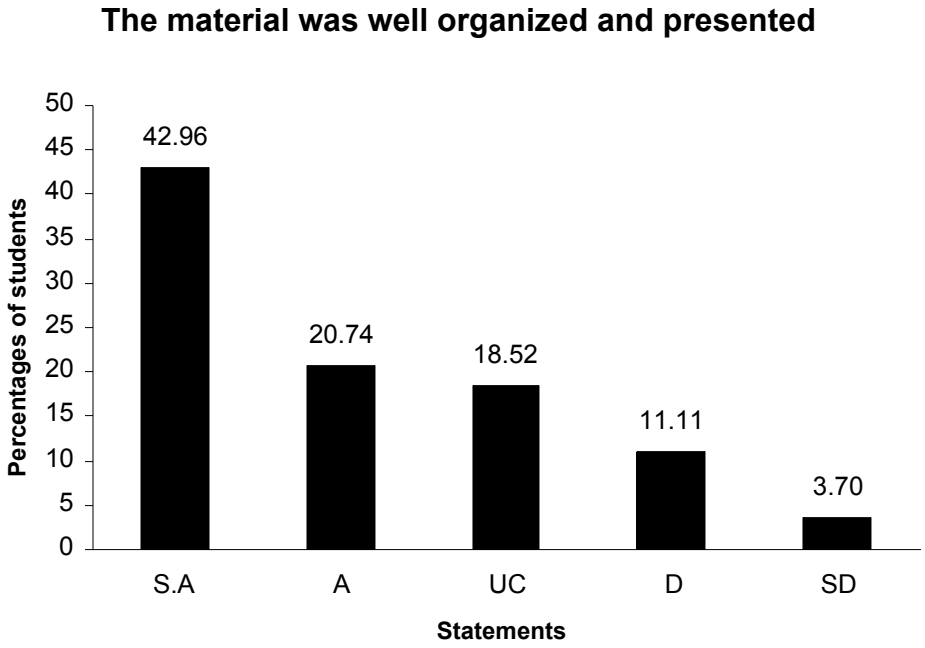
The method of assessment were reasonable



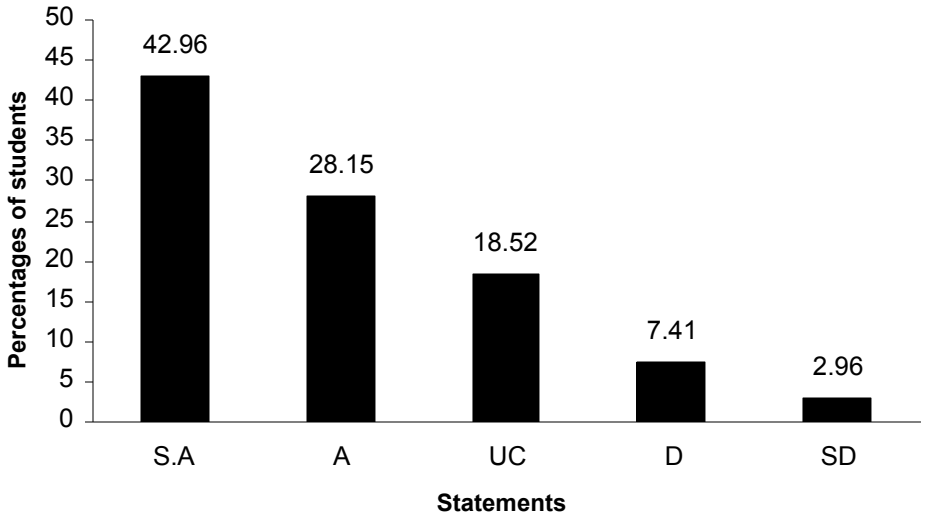

Feedback on assessment was timely
Percentages of students
70
60
50
40
30
20
10
0
57.78
13.33
25.93
1.48
1.48
S.A
A
UC
D
SD
Statements


Feedback on assessment was helpful
Percentages of students
50
45
40
35
30
25
20
15
10
5
0
42.96
28.15
18.52
7.41
2.96
S.A
A
UC
D
SD
Statements

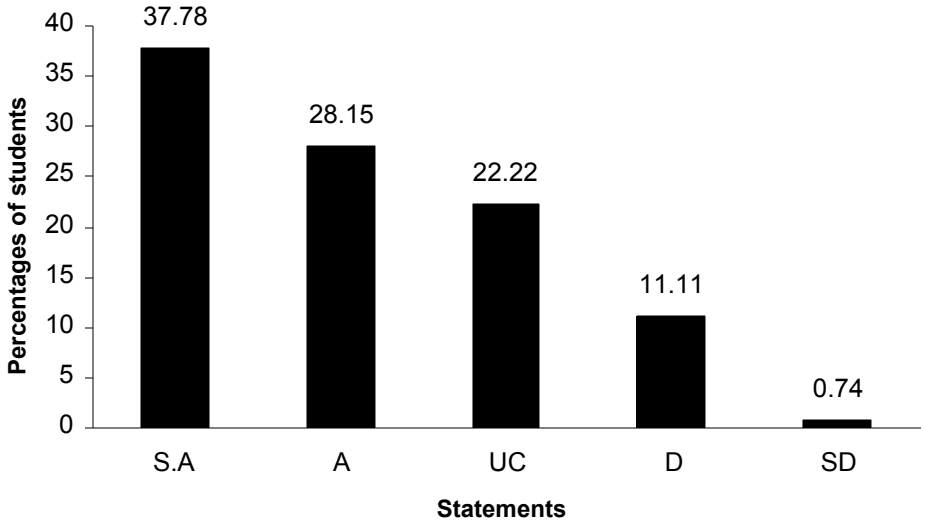

I understood the lectures
60
50
40
30
20
10
0
Percentages of students
48.89
20.74
22.22
5.19
2.22
S.A
A
UC
D
SD
Statements


The material was well organized and presented
50
45
40
35
30
25
20
15
10
5
0
Percentages of students
42.96
20.74
18.52
11.11
3.70
S.A
A
UC
D
SD
Statements

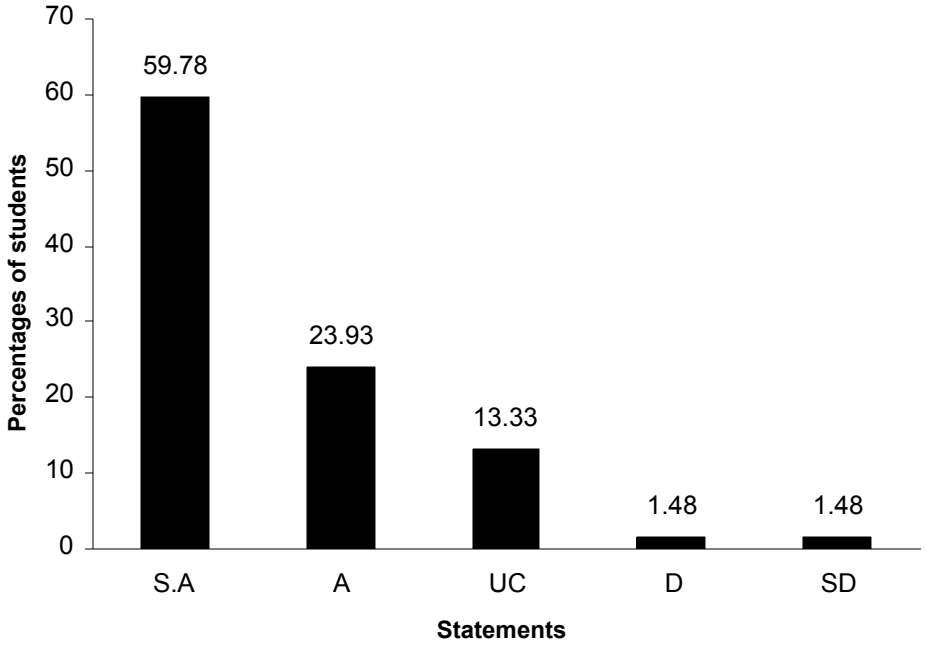
The instructor was responsive to student needs and problems



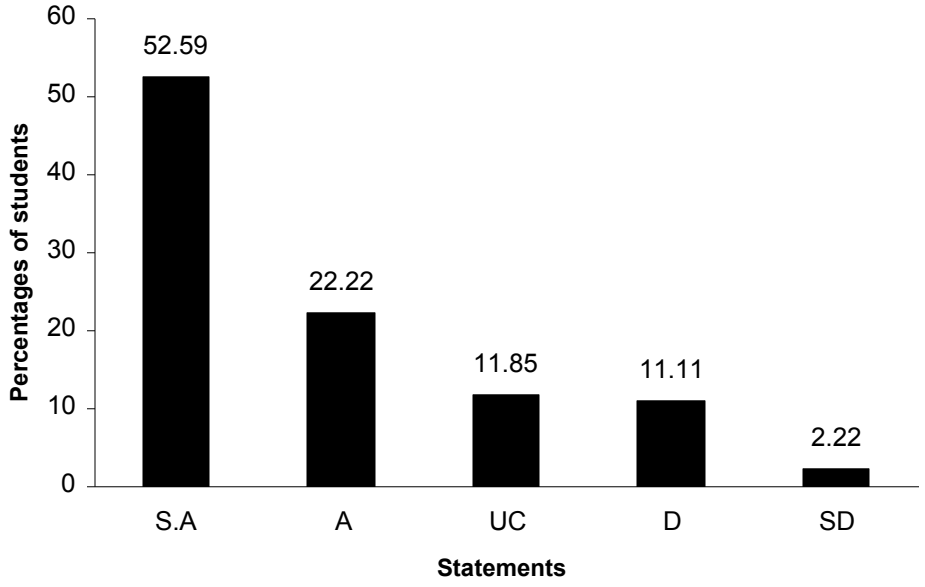
Had the instructor been regular throughout the course



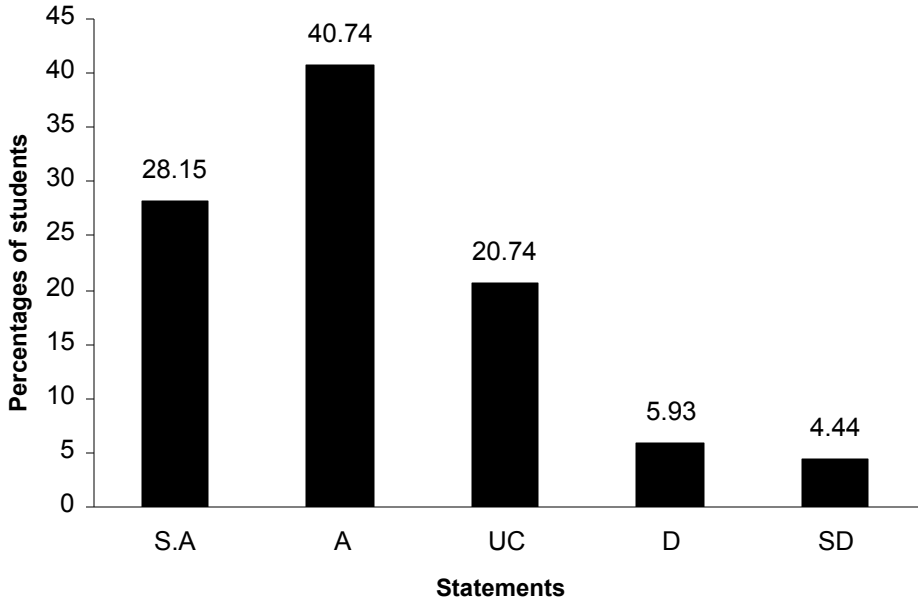
The material in the tutorials was useful



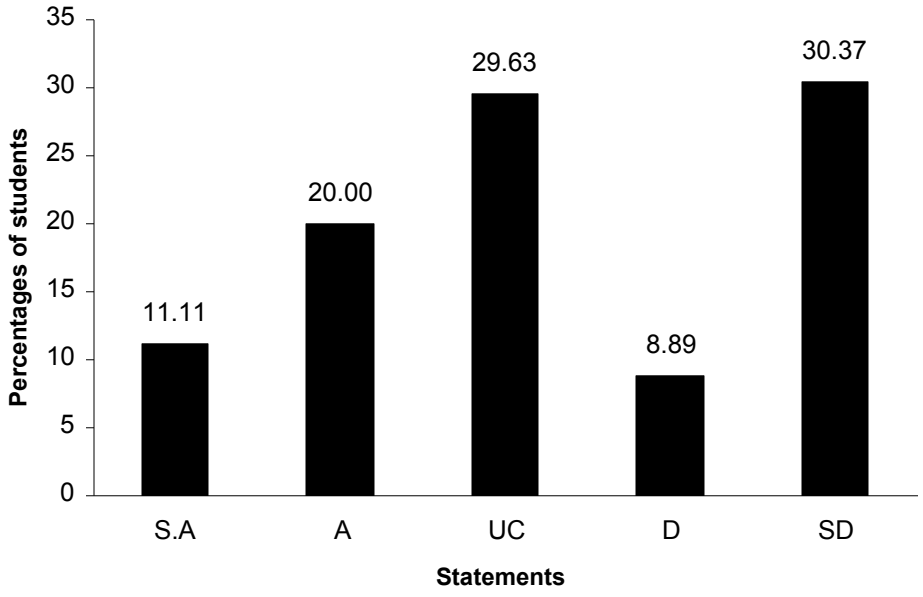
I was happy with the amount of work needed for tutorials



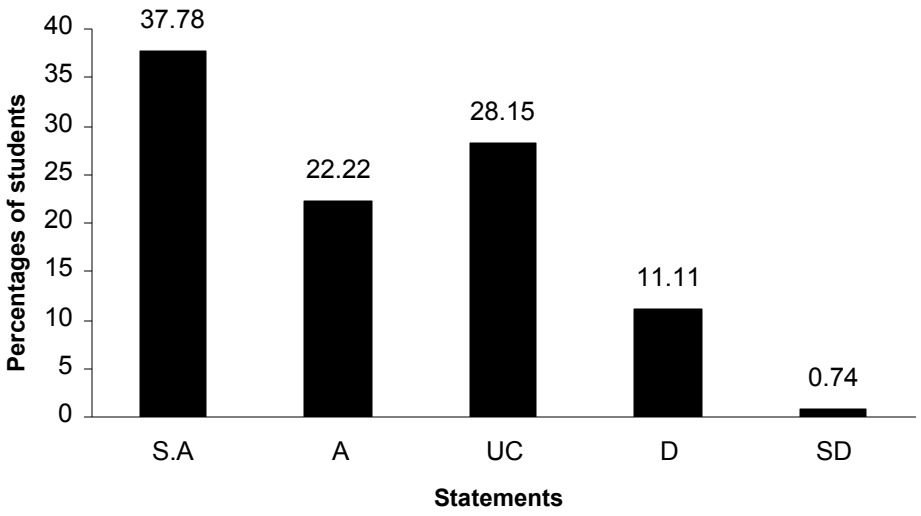
The tutor dealt effectively with my problems



The material in the practicals was useful



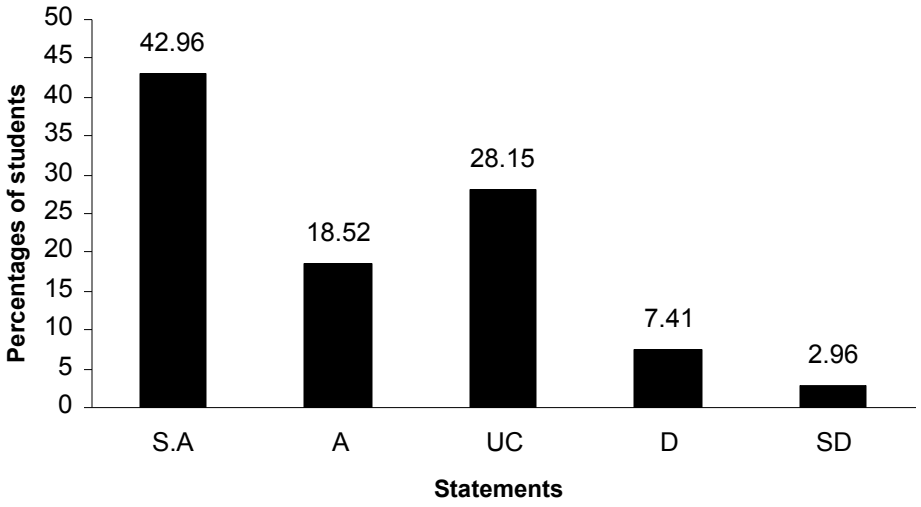
The demonstrators dealt effectively with my problems


37.78
28.15
22.22
11.11
0.74
40
35
30
25
20
15
10
5
0
Percentages of students
S.A
A
UC
D
SD
Statements

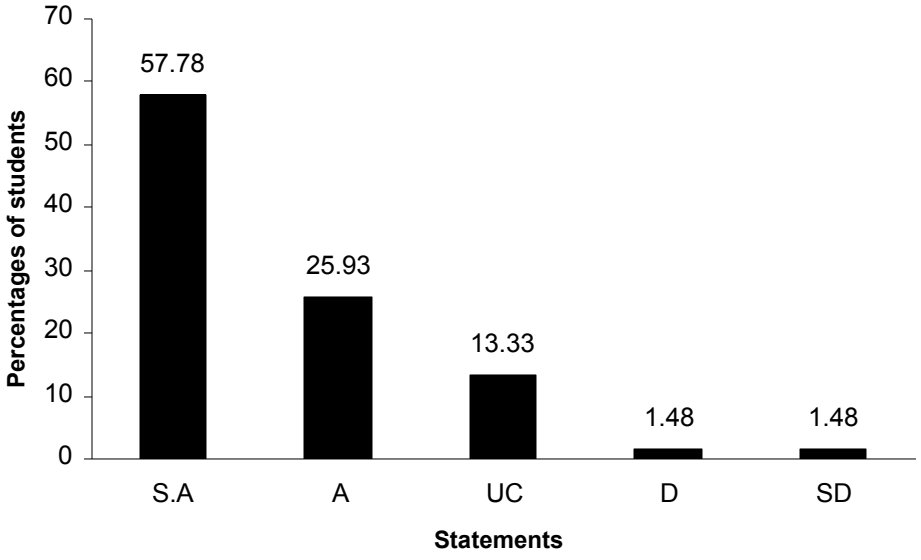
Dr. M. Sajid Nadeem Teacher Evaluation

Data were collected from 65 students. Data shows that the students are strongly agreed (42.96%) that the teacher is fair in examination. More than 57% of the students are strongly agreed that the instructor came with good preparation. Similarly, most of the students agreed that instructor demonstrates knowledge of the subject, instructor has completed the whole course, the Instructor provides additional material apart from the textbook, the Instructor gives citations regarding current situations with reference to Pakistani context, the Instructor communicates the subject matter, the Instructor shows respect towards students and encourages class participation effectively, the Instructor maintains an environment that is conducive to learning, the Instructor arrives on time, the Instructor returns the graded scripts etc. in a reasonable amount of time, the Instructor was available during the specified office hours and for after class consultations, the Subject matter presented in the course has increased your knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated

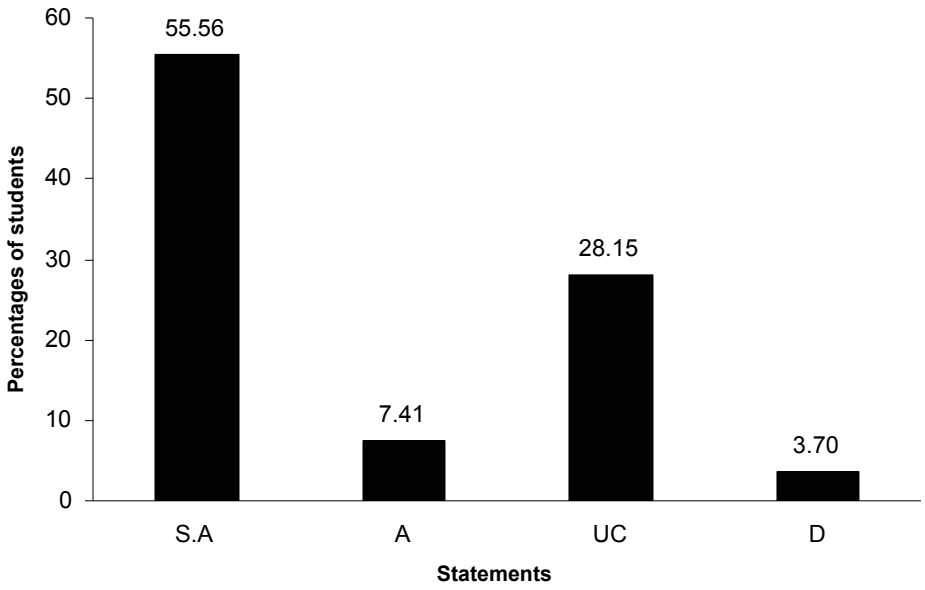
The Instructor is fair in examination



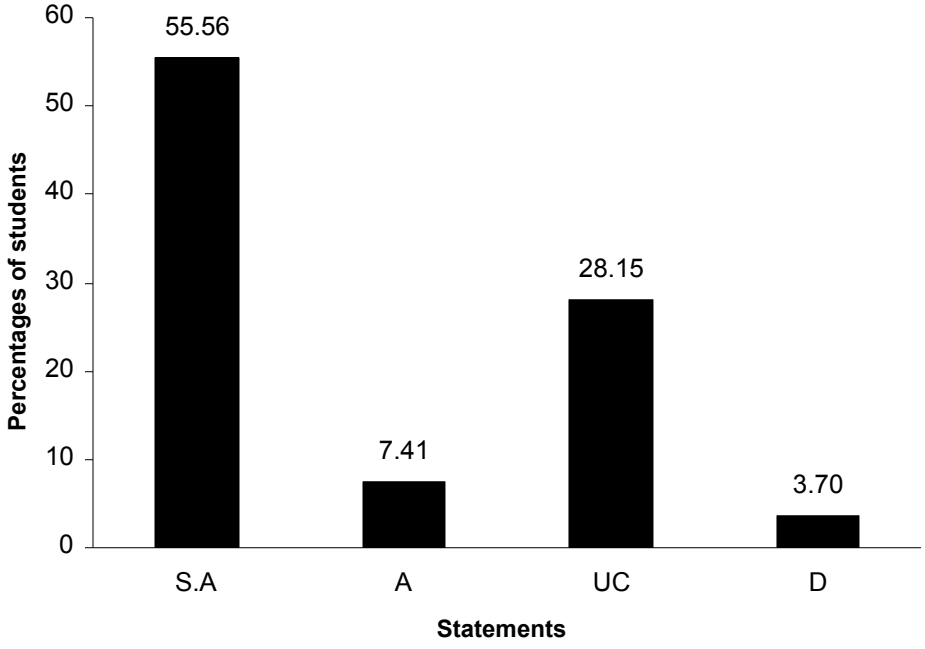
The Instructor is prepared for each class



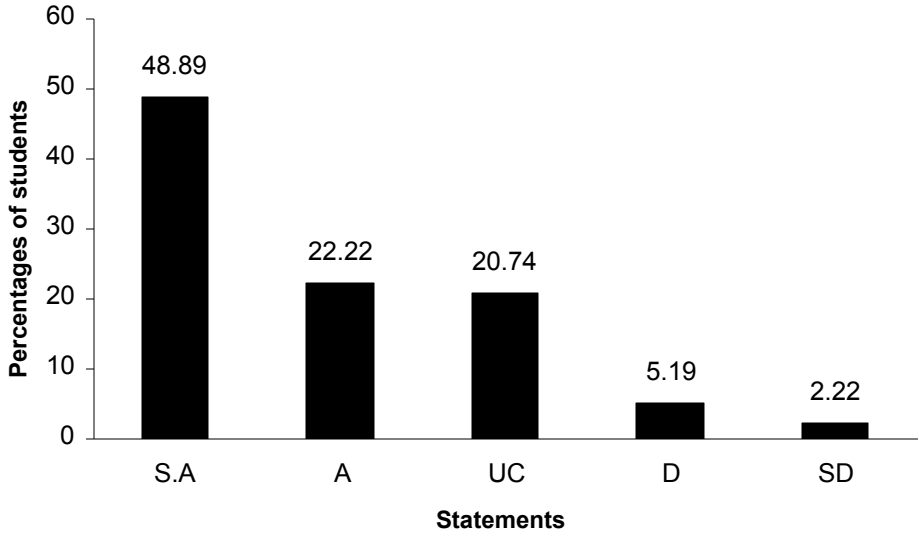
The Instructor demonstrates knowledge of the subject



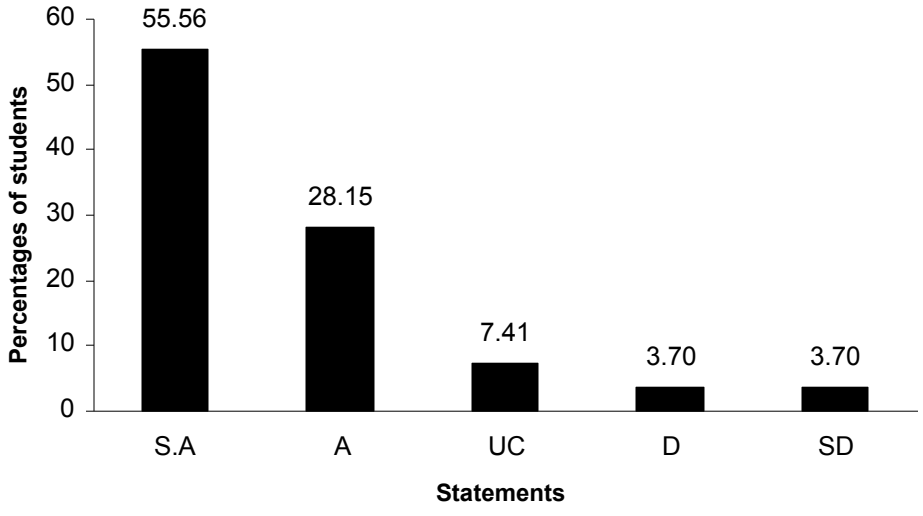
The Instructor has completed the whole course



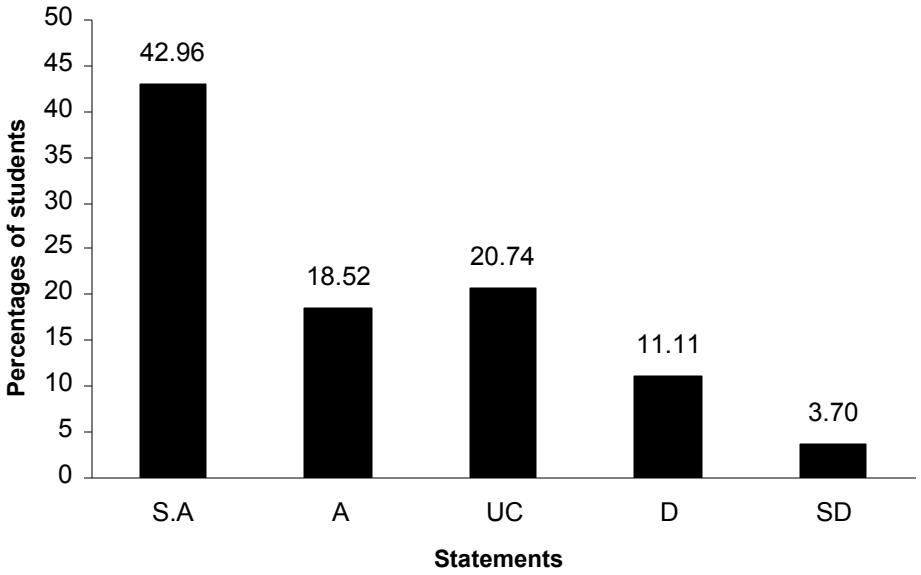
The Instructor provides additional material apart from the textbook



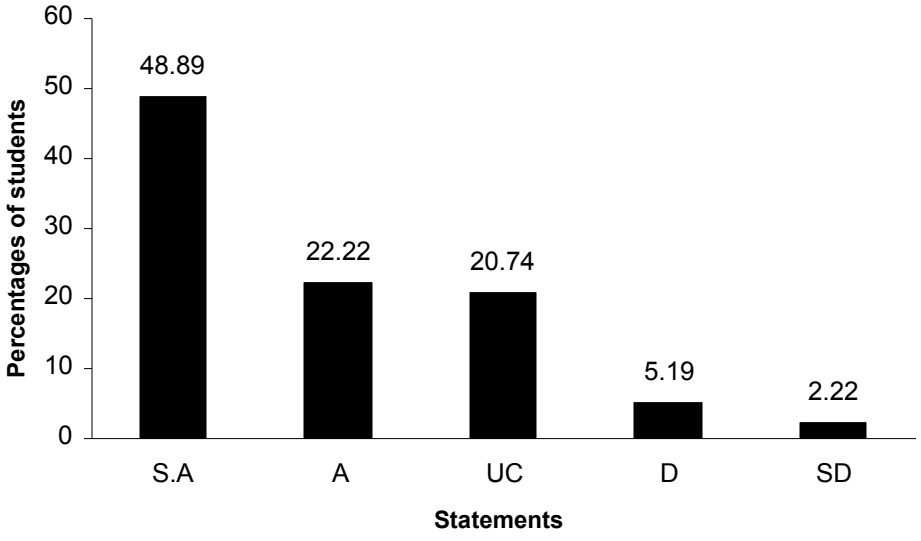
The Instructor gives citations regarding current situations with reference to Pakistani context



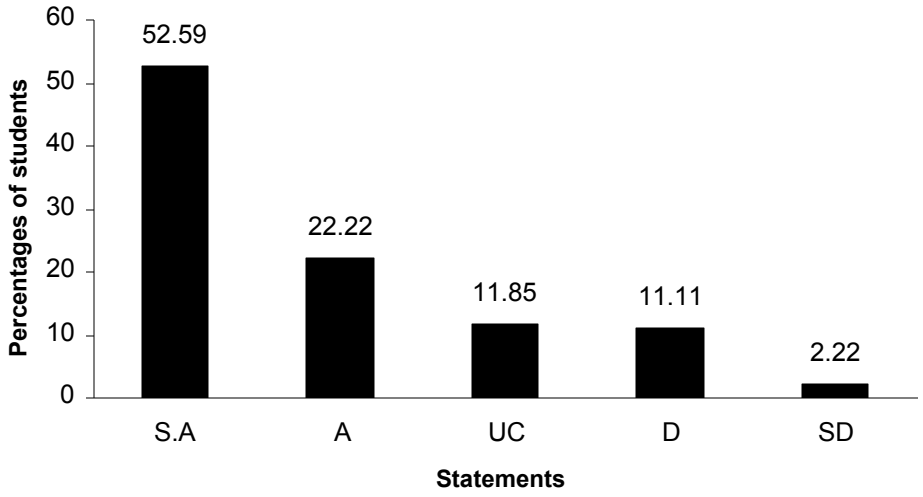
The Instructor communicates the subject matter effectively



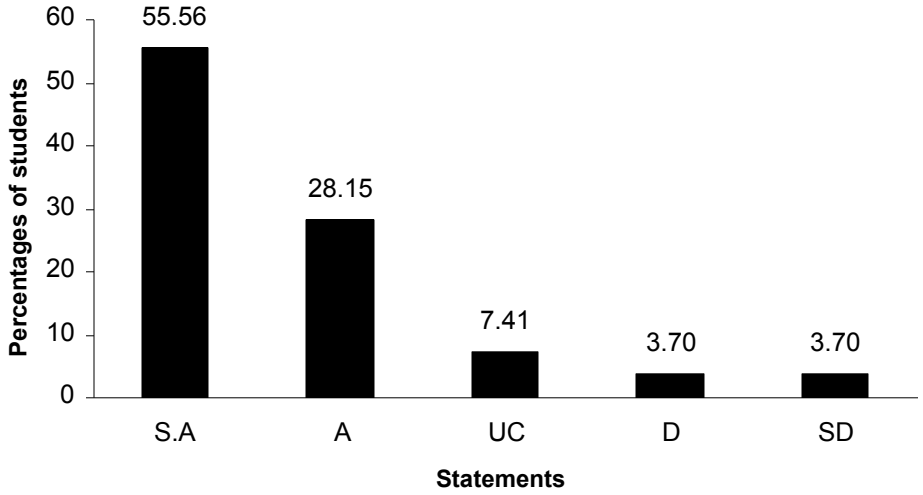
The Instructor shows respect towards students and encourages class participation



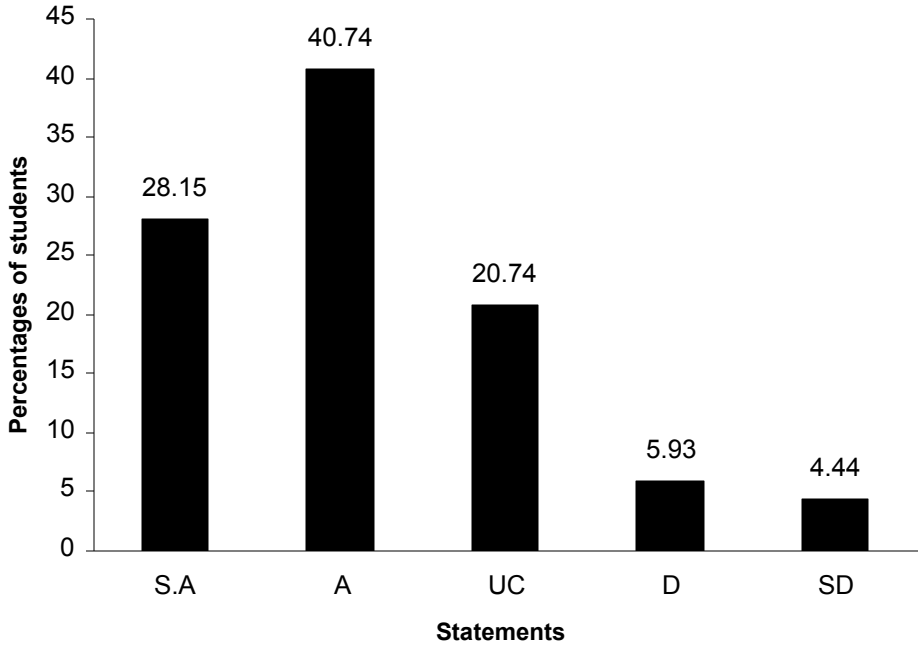
The Instructor maintains an environment that is conducive to learning



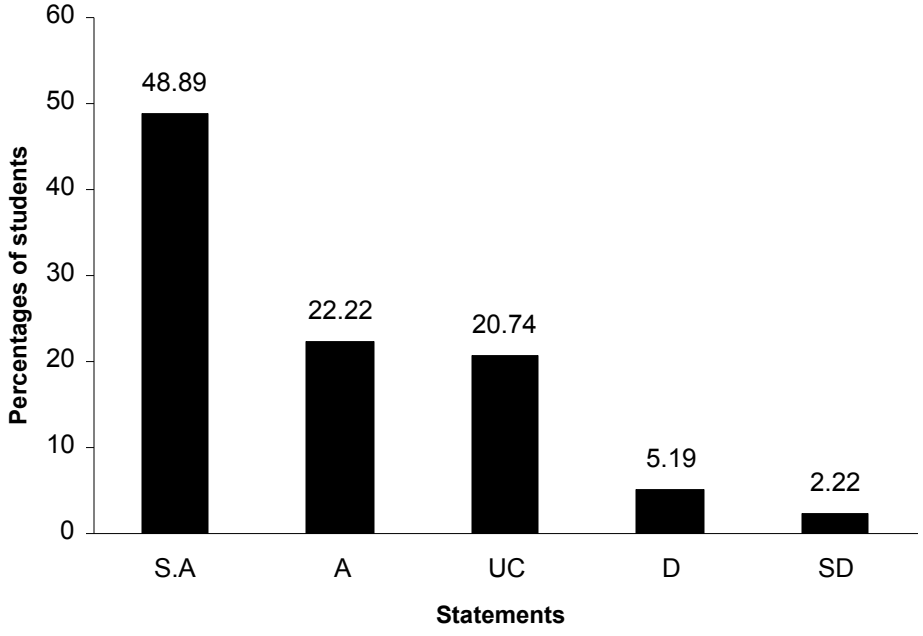
The Instructor arrives on time



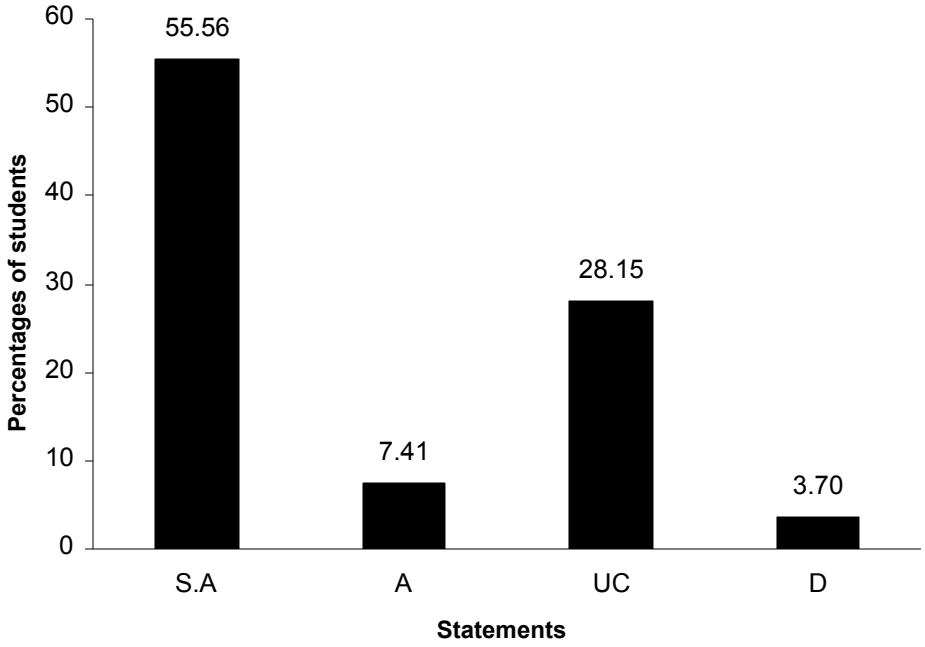
The Instructor is fair in examination



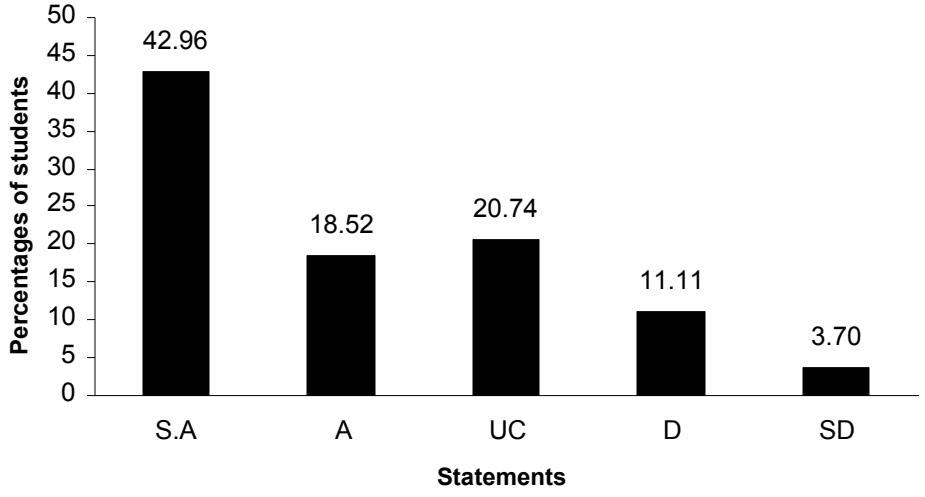
The Instructor returns the graded scripts etc. in a reasonable amount of time



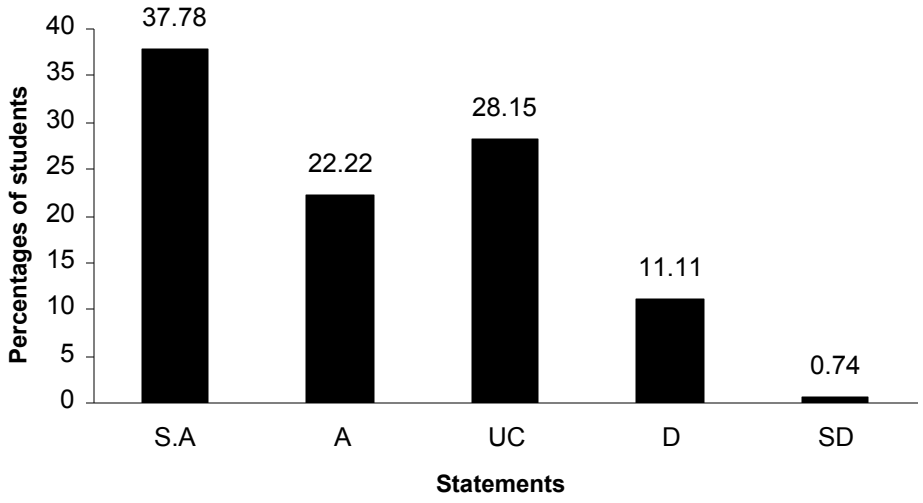
The Instructor was available during the specified office hours and for after class consultations



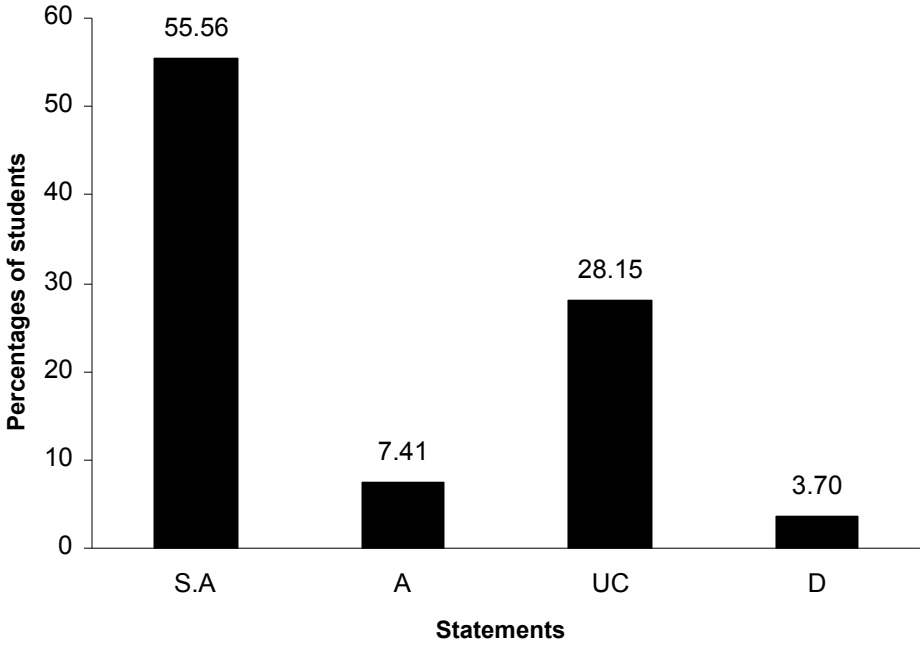
The Subject matter presented in the course has increased your knowledge of the subject



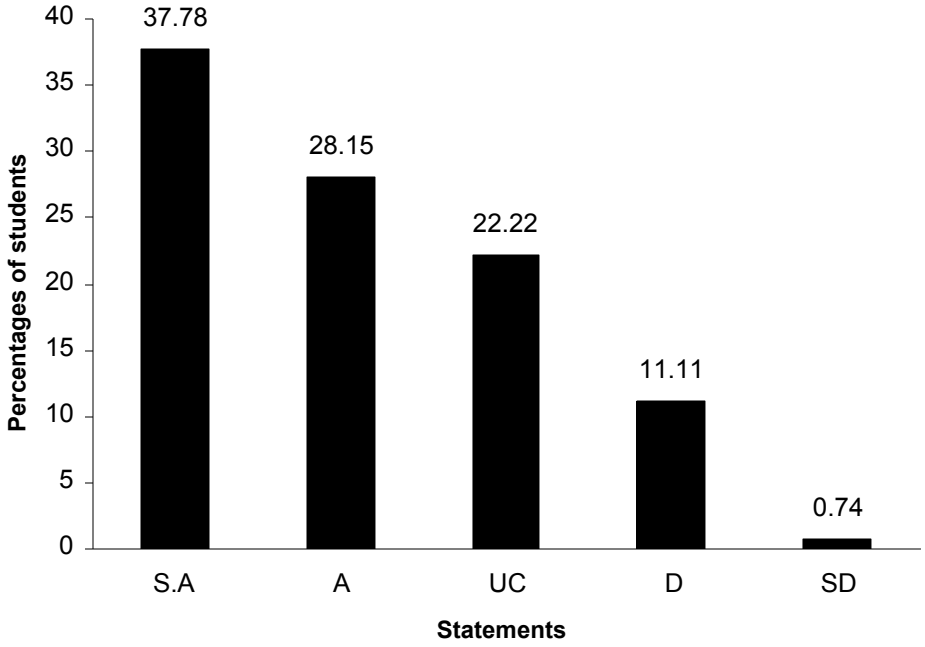
The syllabus clearly states course objectives requirements, procedures and grading criteria



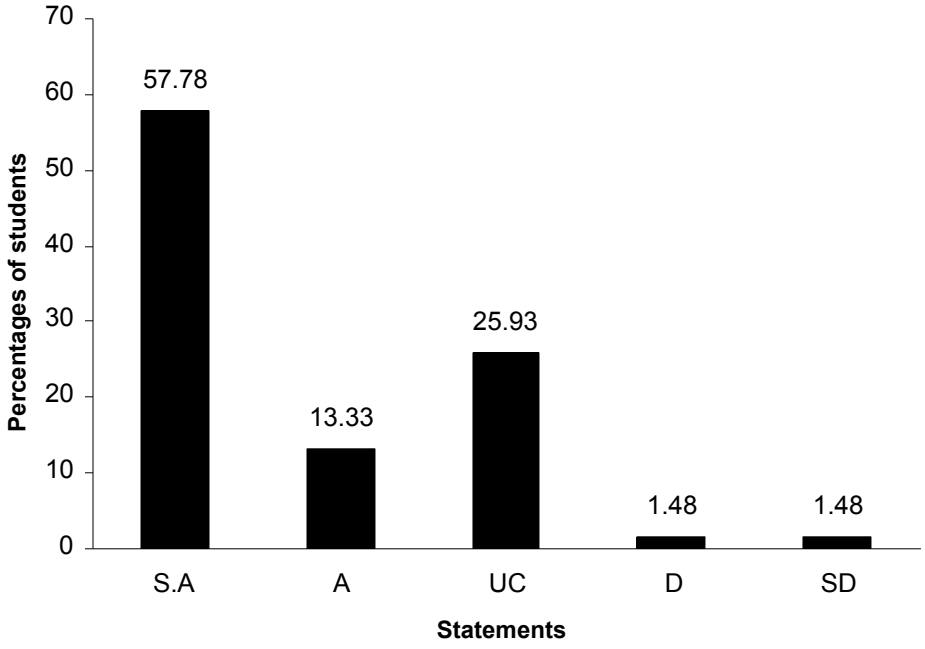
The course integrates theoretical course concepts with real-world applications



The assignments and exams covered the materials presented in the course



The course material is modern and updated

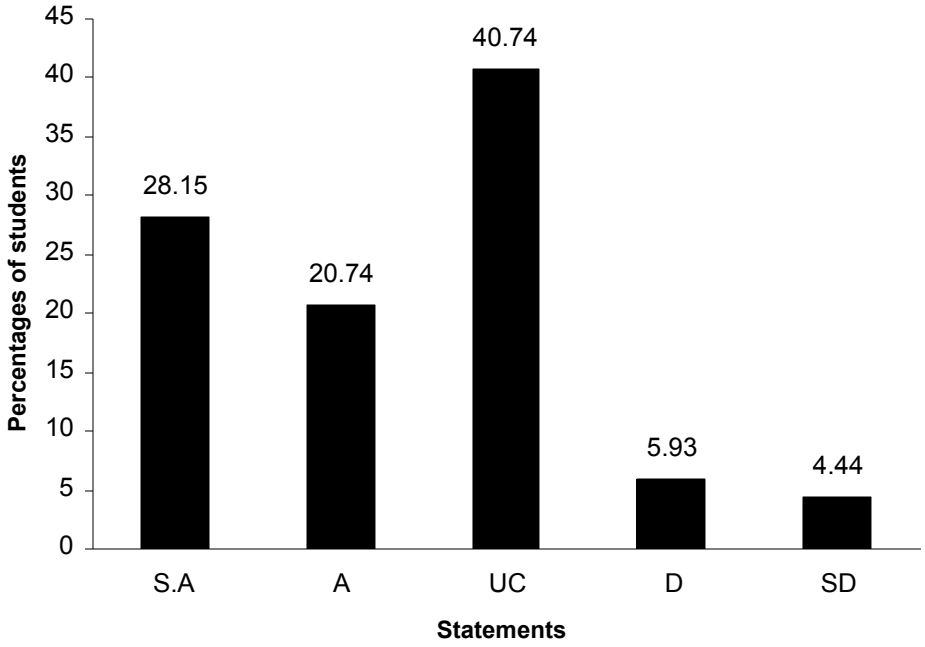


Course Evaluation

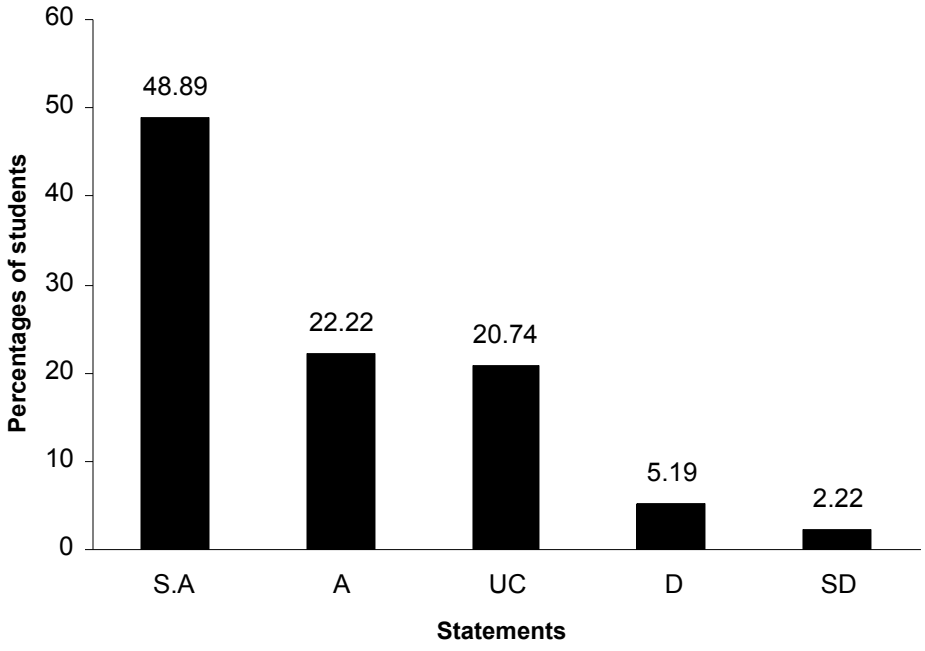
ZOOL-715	Faunal Biodiversity of Pakistan	3(2-2)	Dr. M. Sajid Nadeem

Data were collected from 70 students. Data shows that 29.78% students are strongly agreed that the course objectives were clear. More than 48% of the students are strongly agreed that the course workload was manageable, well organized (e.g. timely access to materials, notification of changes, etc.). The students are strongly agreed that the approximate level of student's attendance during the whole course was higher; students participated actively in the course and have made progress in this course. Most of the students think the course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.). Similarly, they are agreed that the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials (Lesson Plans, Course Notes etc.) were relevant and useful, recommended reading books etc. were relevant and appropriate. They described that the provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area. According to most of the students, the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable, the material was well organized and presented, the instructor was responsive to student needs and problems, instructor was regular throughout the course and the material in the tutorials was useful

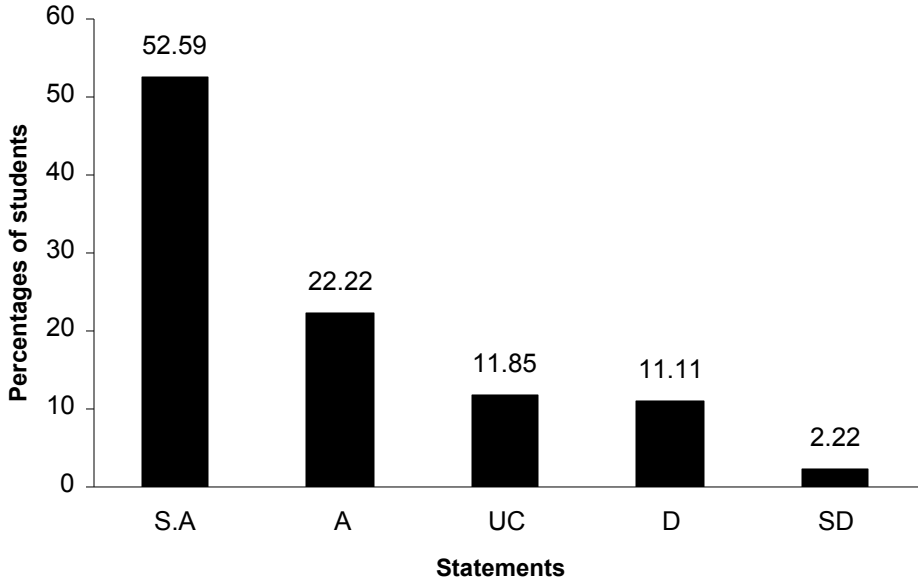
The Course objectives were clear



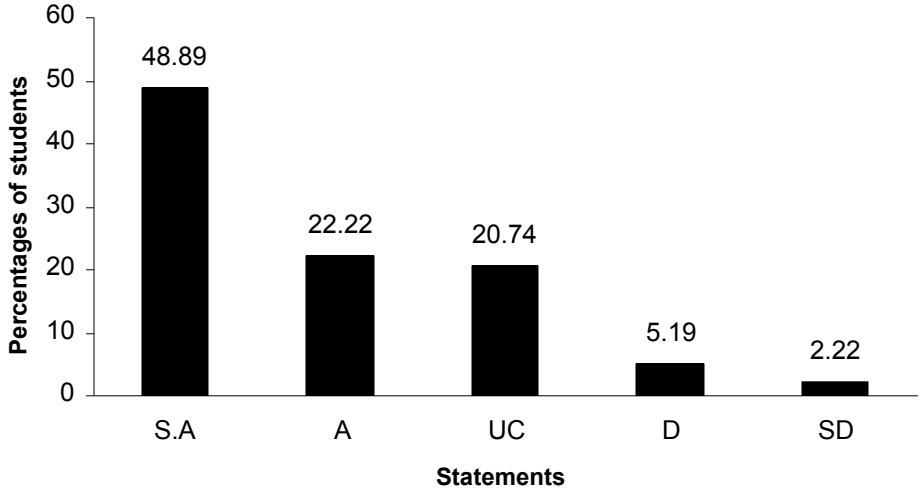
The Course workload was manageable



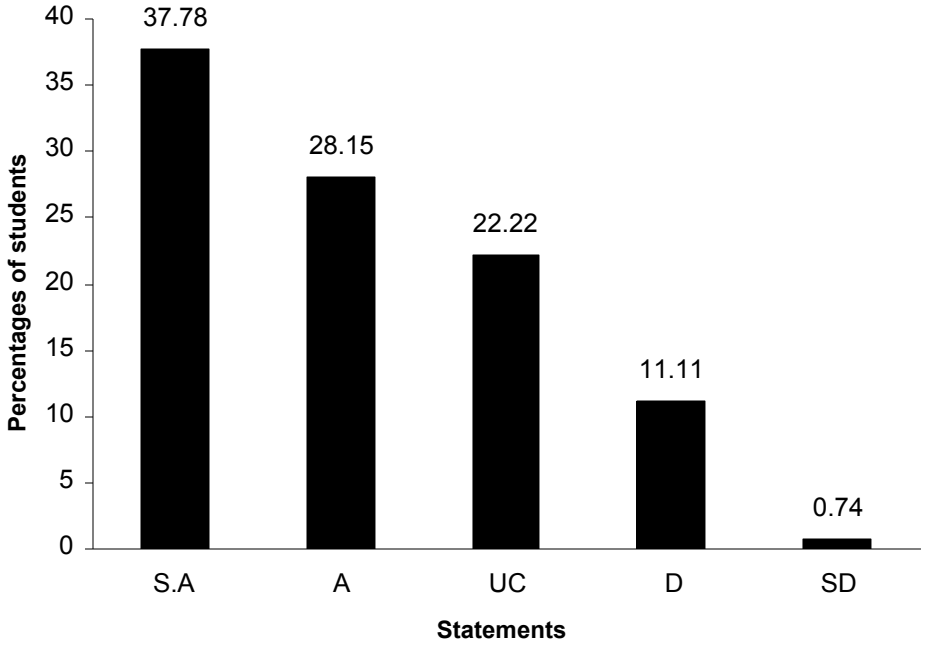
The Course was well organized (e.g. timely access to materials, notification of changes, etc.)



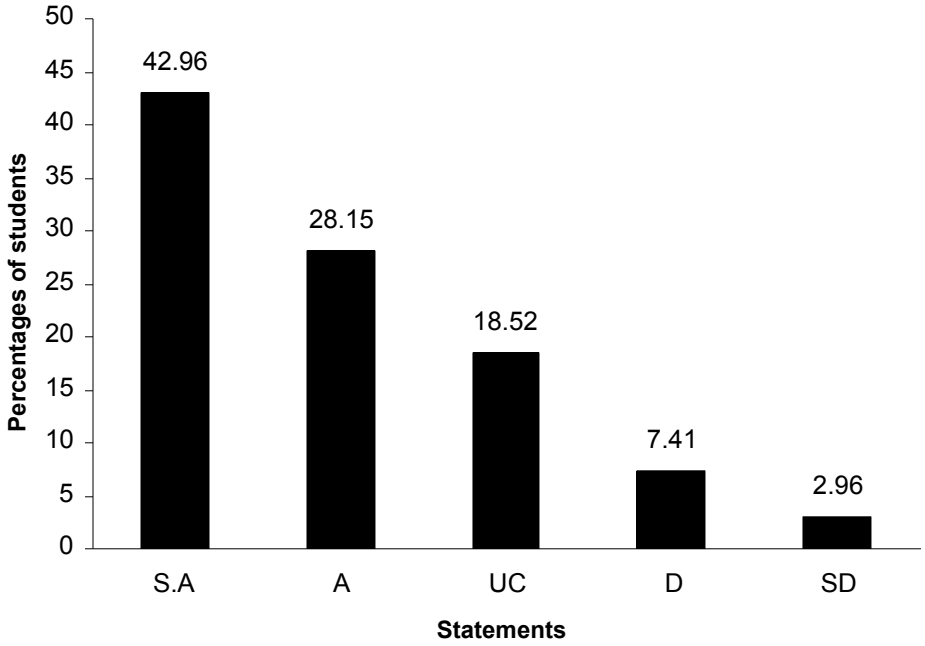
Approximate level of your own attendance during the whole Course



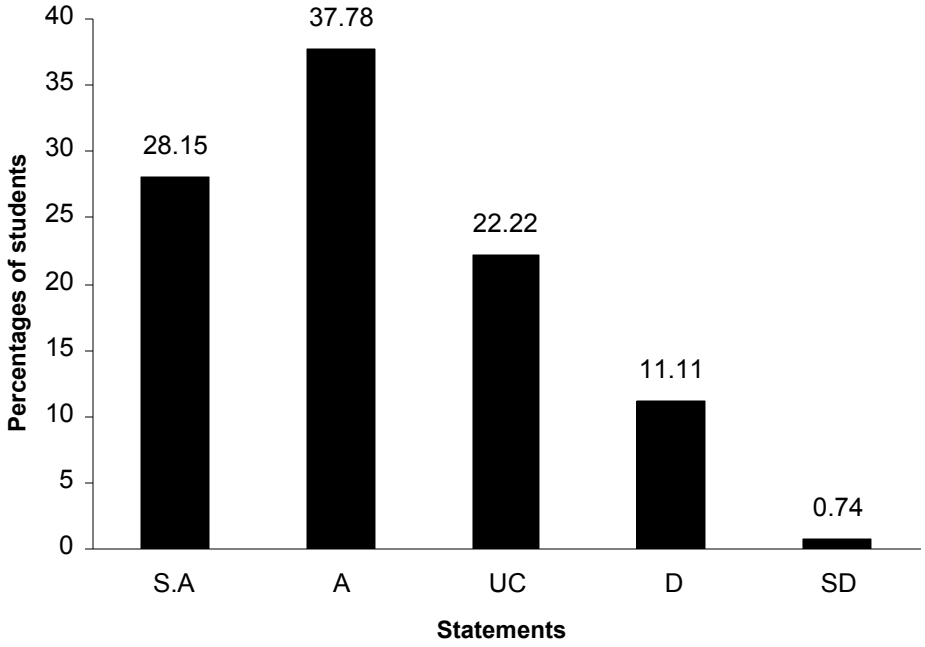
I participated actively in the Course



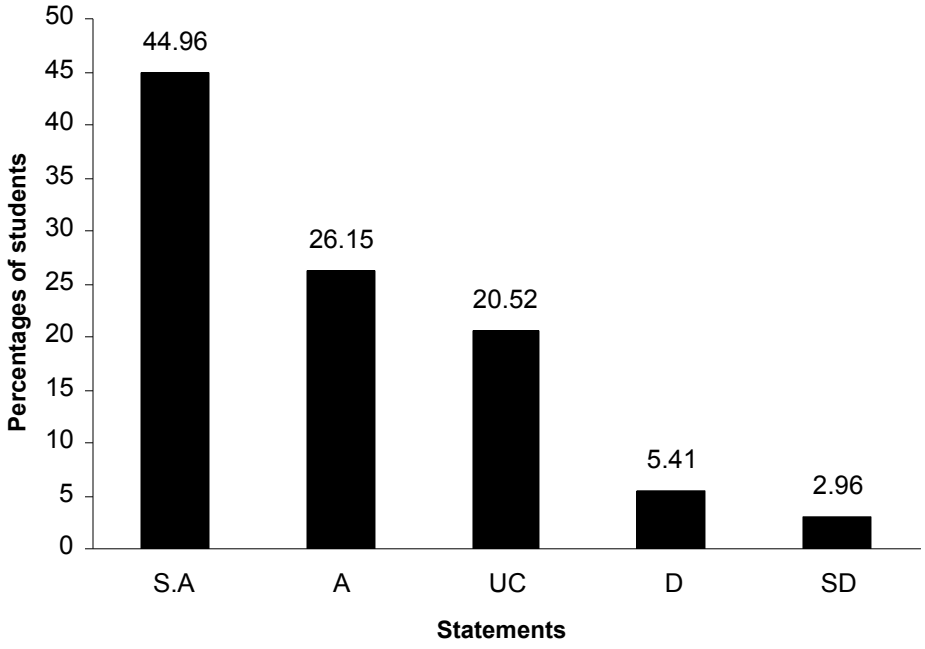
I think I have made progress in this Course



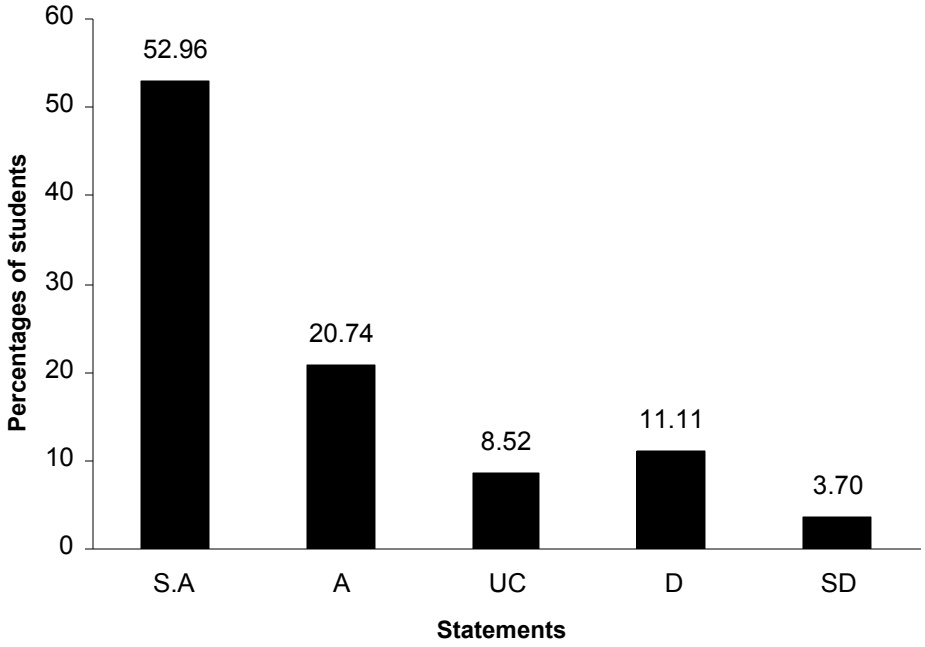
I think the Course was well structured to achieve the learning outcomes



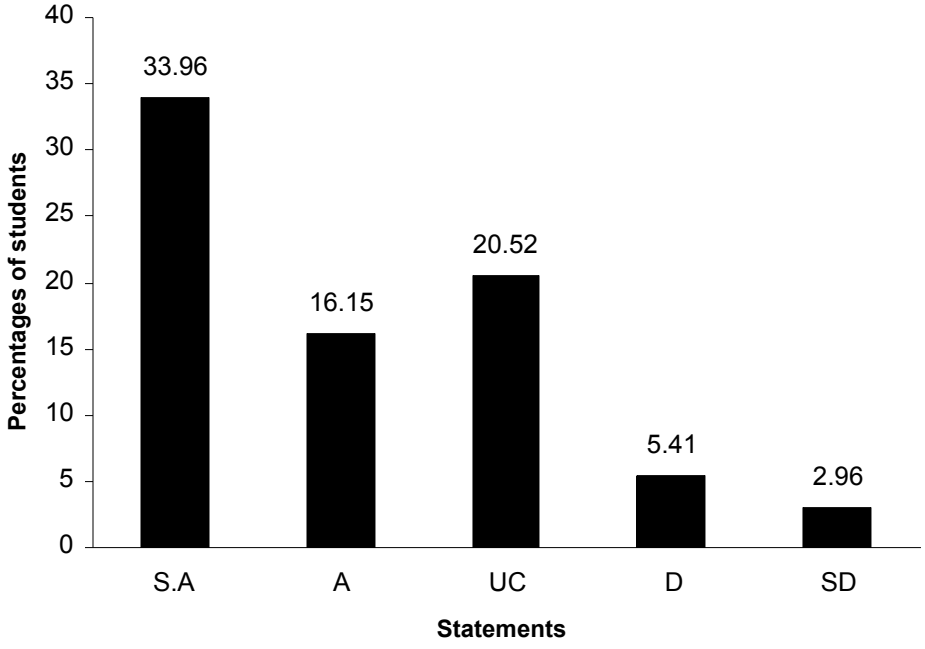
The learning and teaching methods encouraged participation



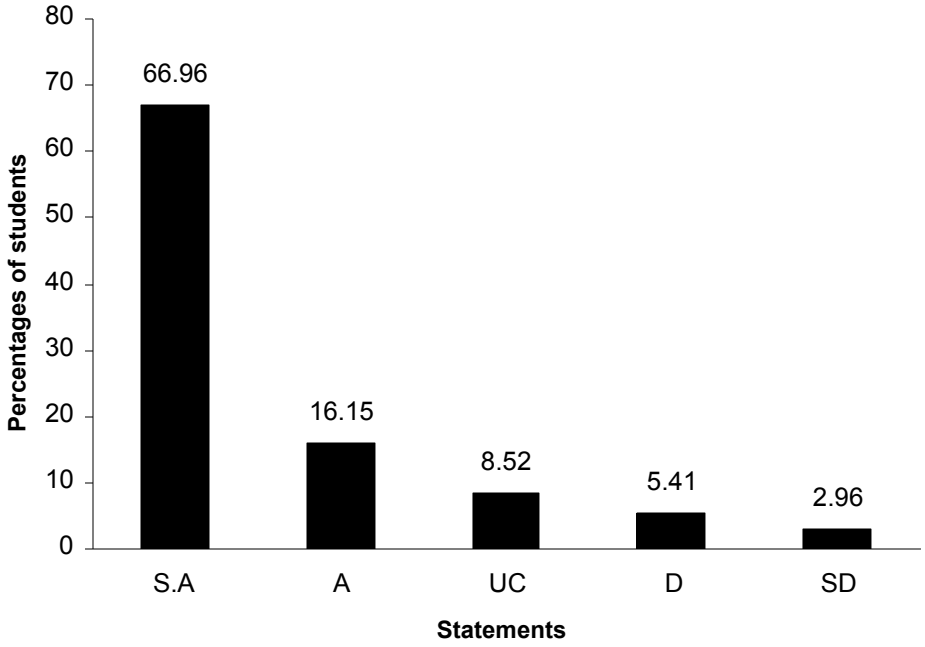
The overall environment in the class was conductive to learning
Classrooms were satisfactory



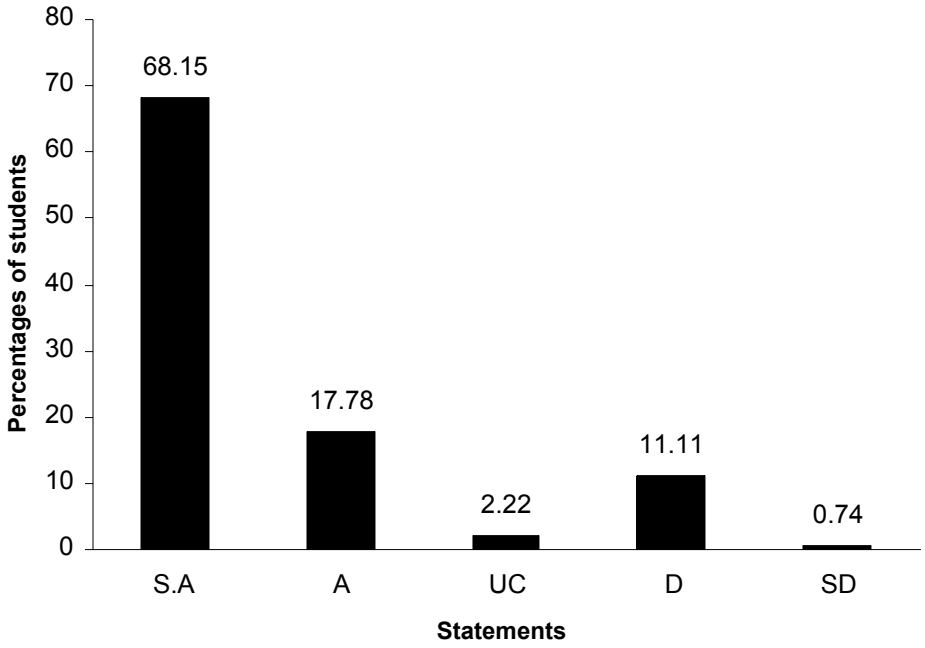
Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful



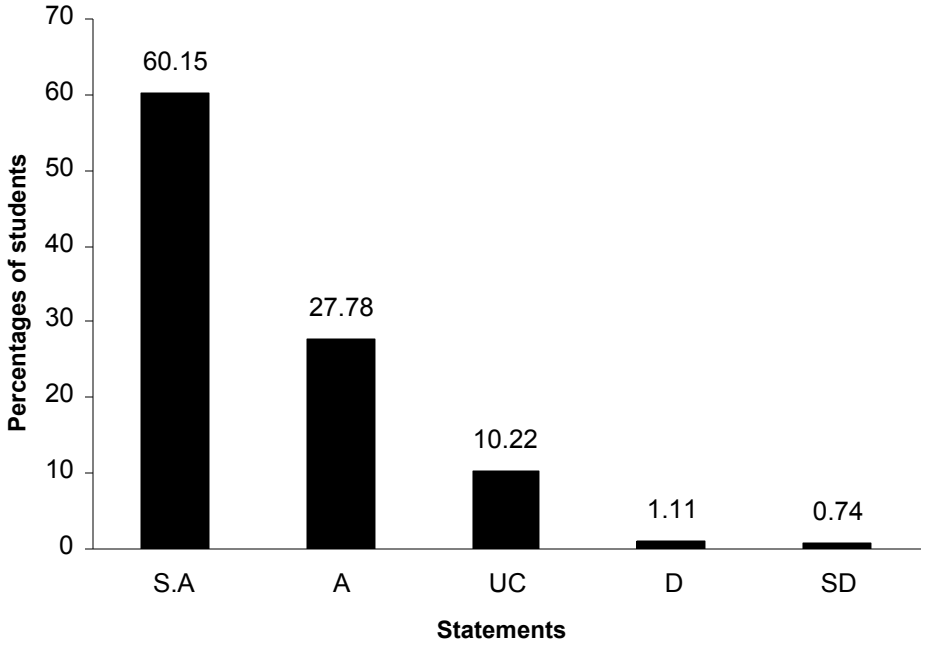
Recommended reading Books etc. were relevant and appropriate



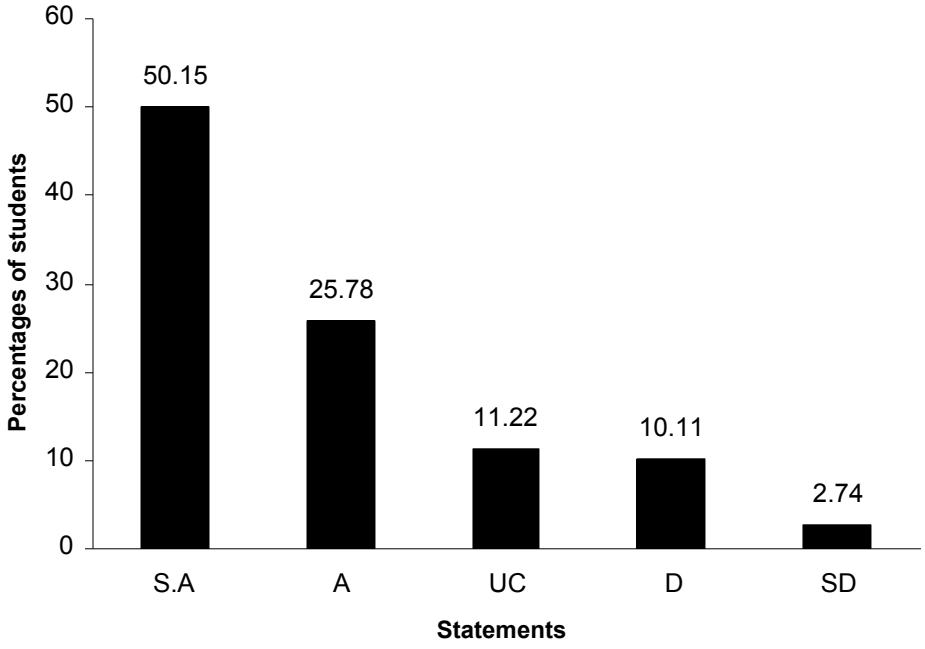
The provision of learning resources in the library was adequate and appropriate



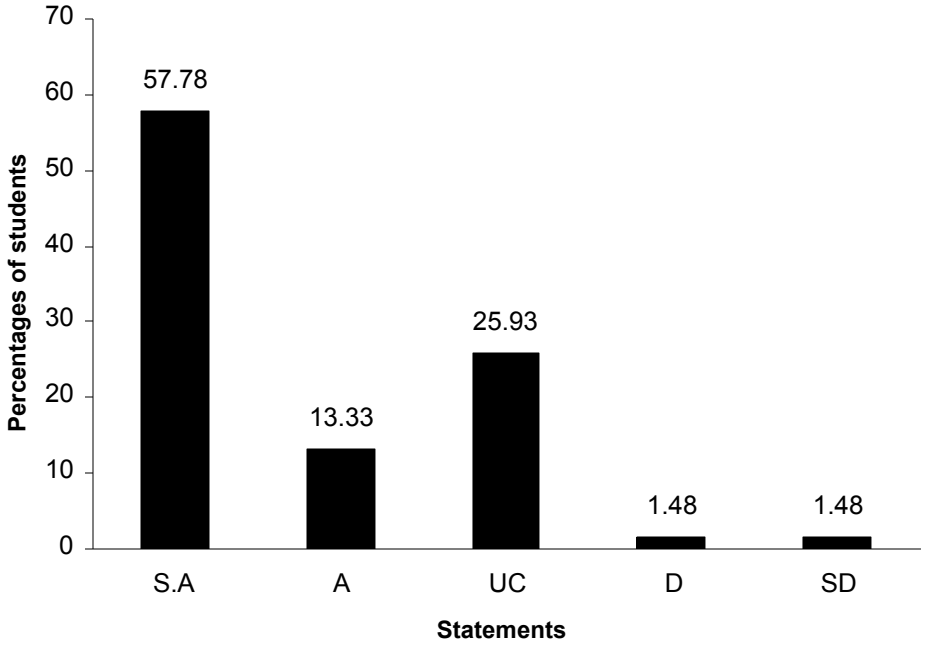
The provision of learning resources on the Web was adequate and appropriate (if relevant)



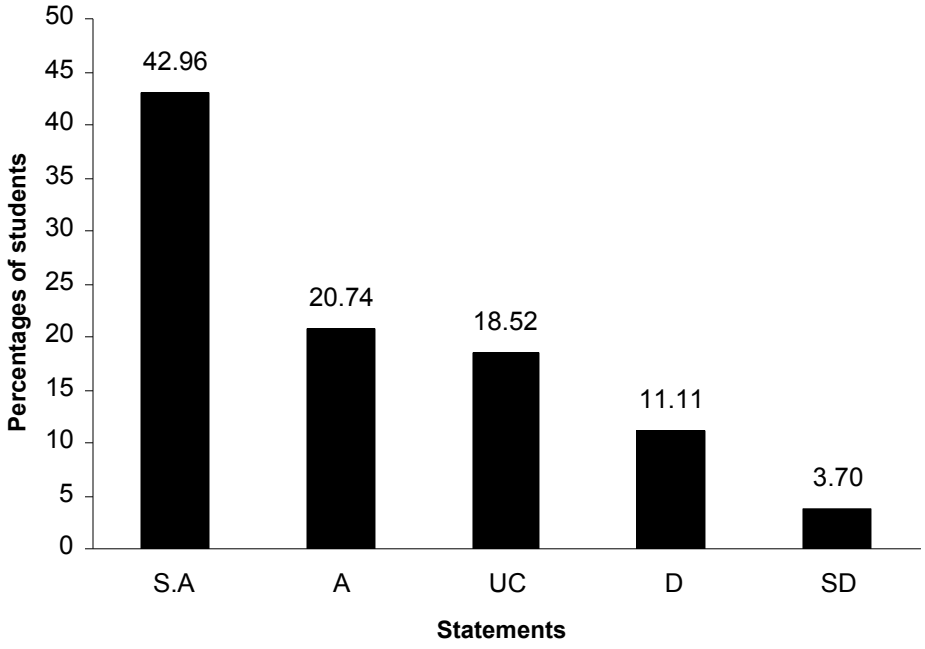
The Course stimulated my interest and thought on the subject area



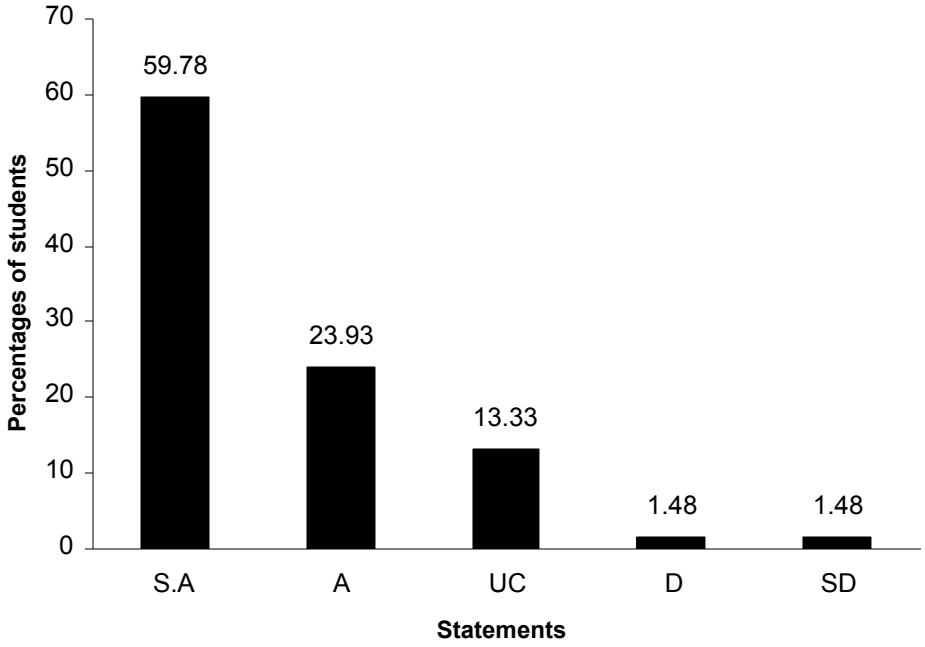
The pace of the Course was appropriate



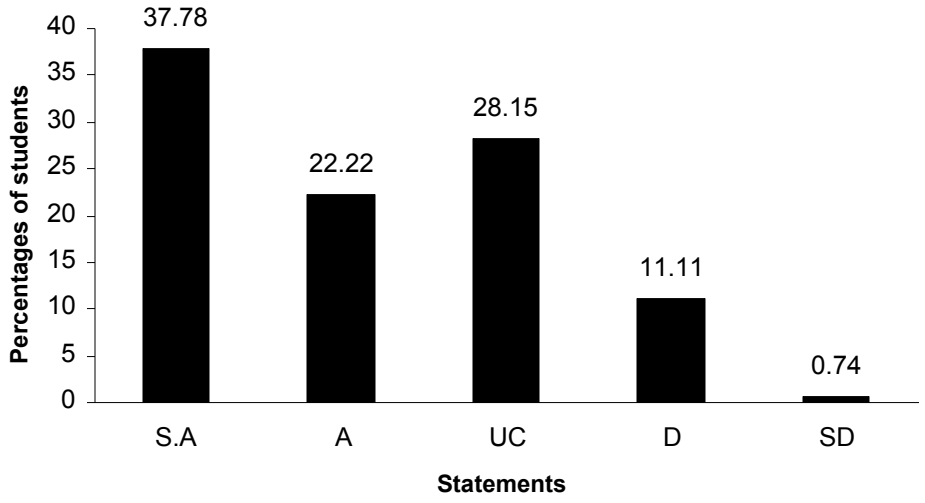
Ideas and concepts were presented clearly



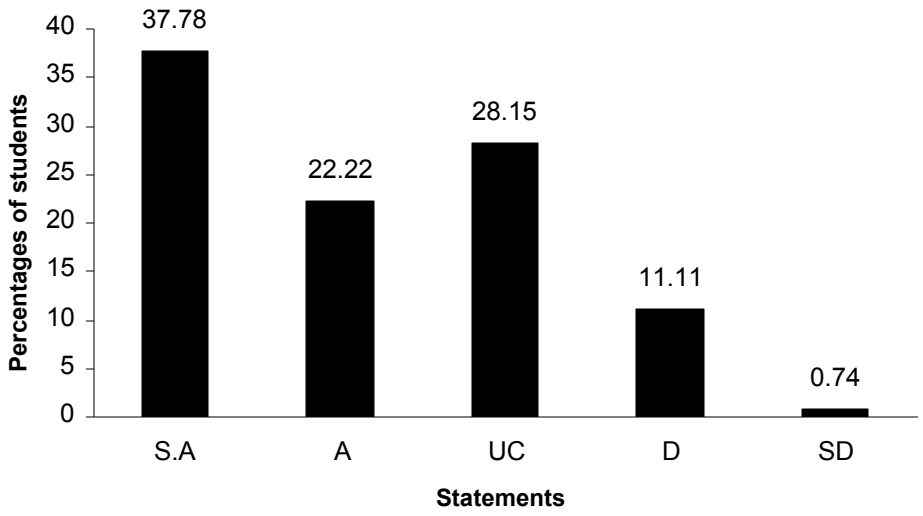
The method of assessment were reasonable



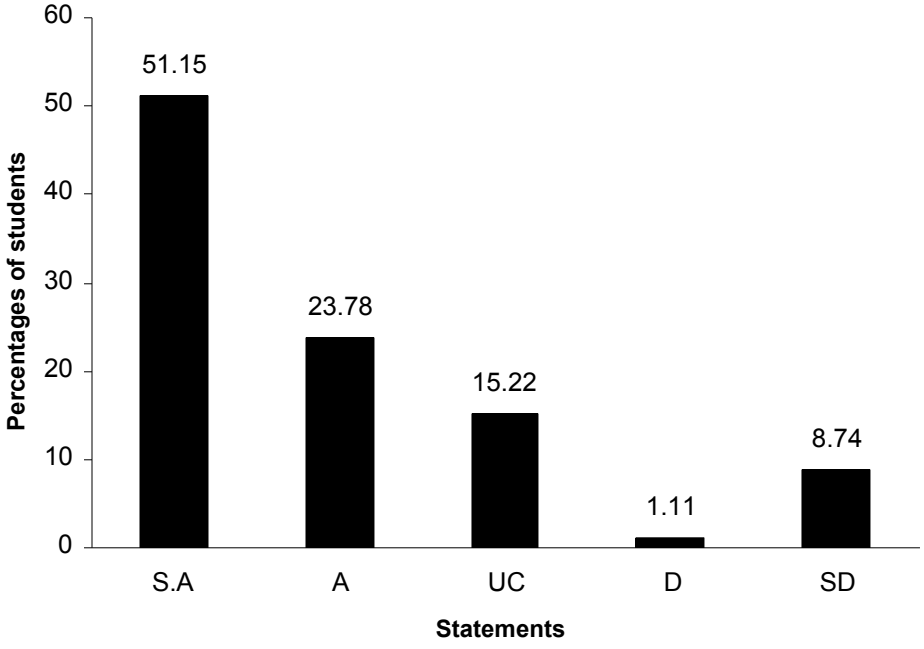
Feedback on assessment was timely



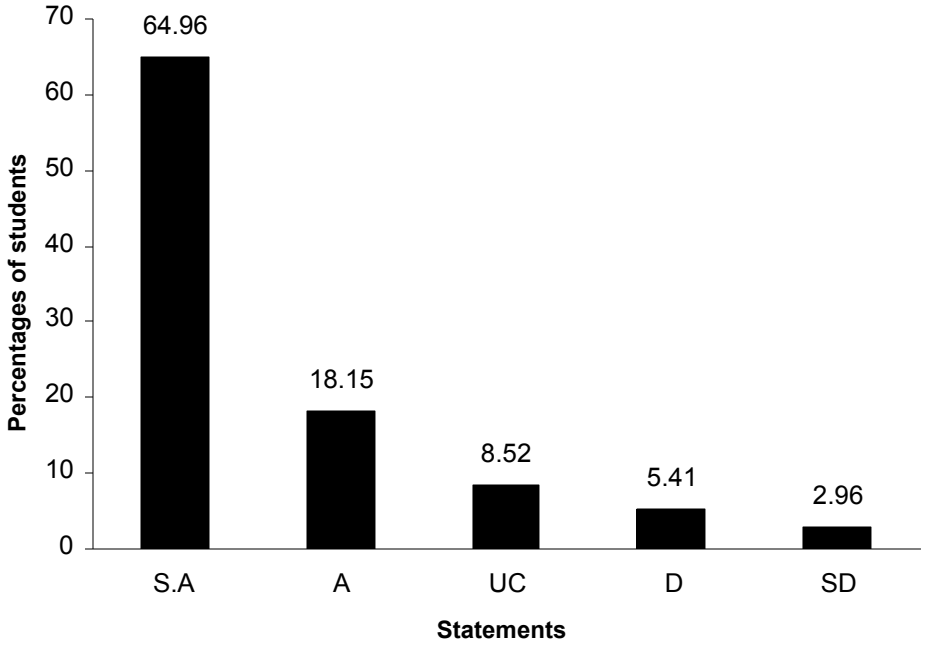
Feedback on assessment was helpful



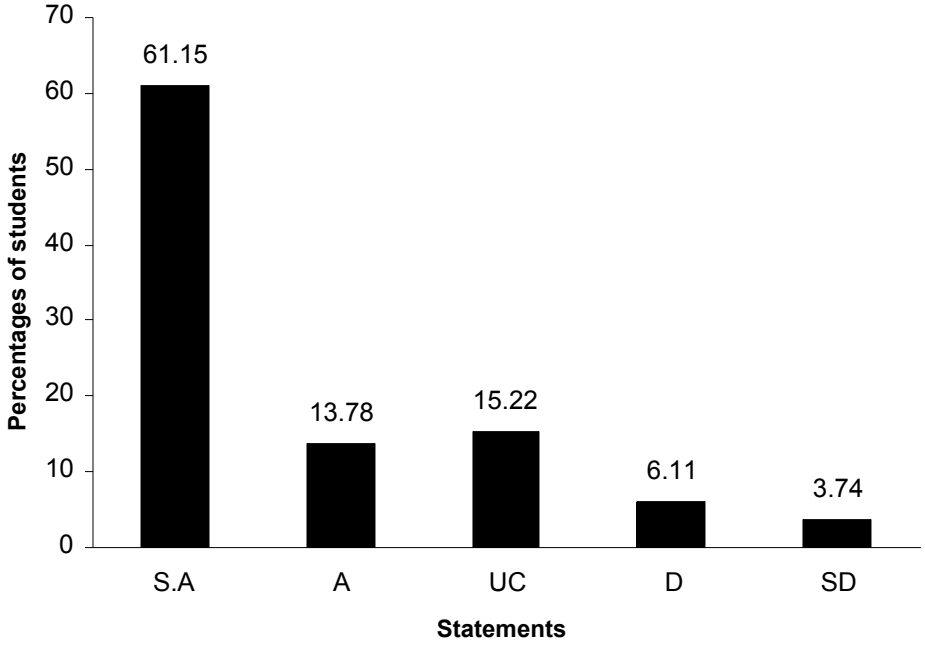
I understood the lectures



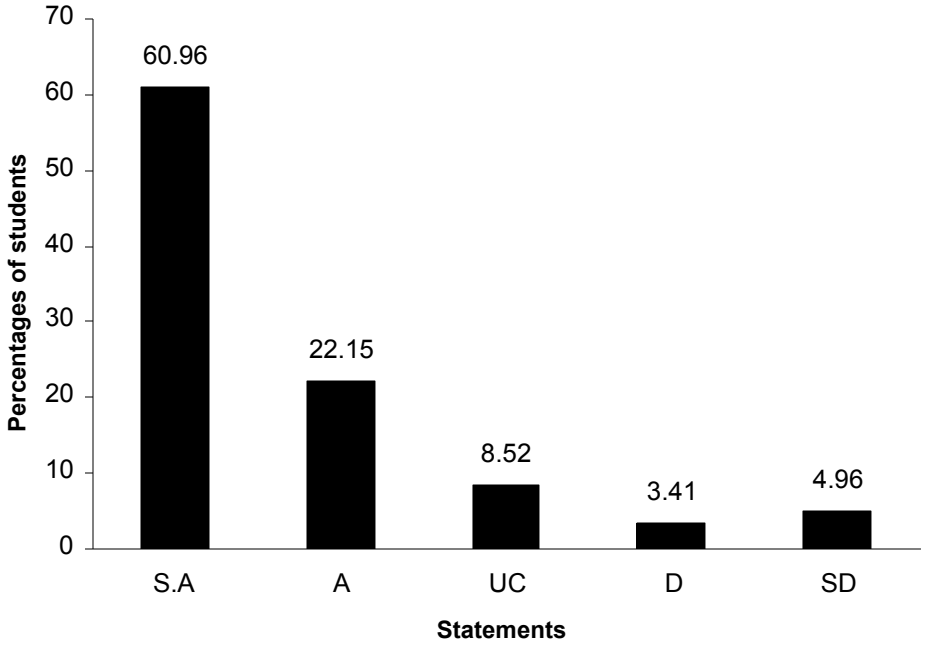
The material was well organized and presented



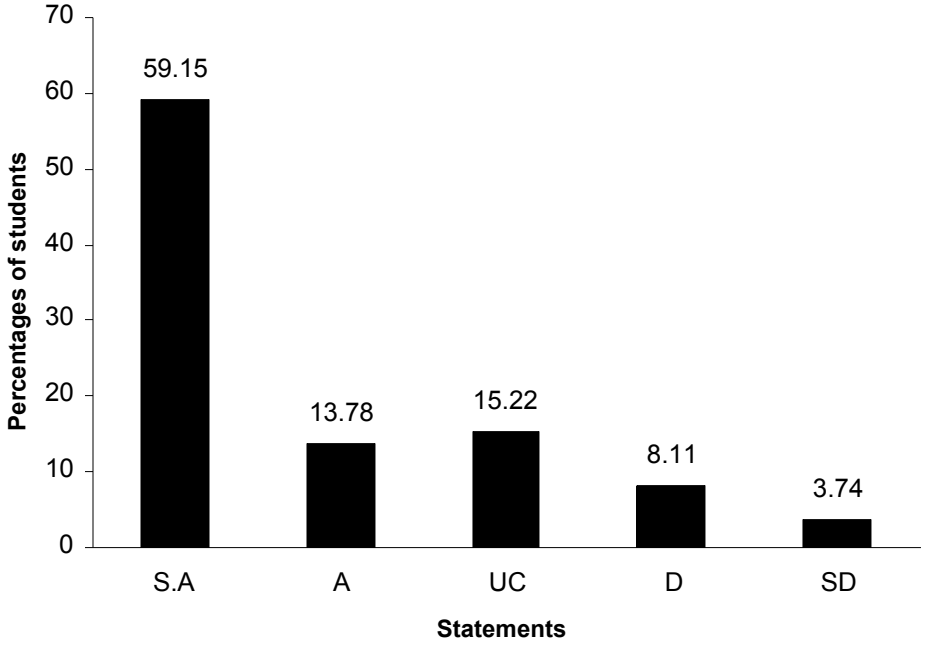
The instructor was responsive to student needs and problems



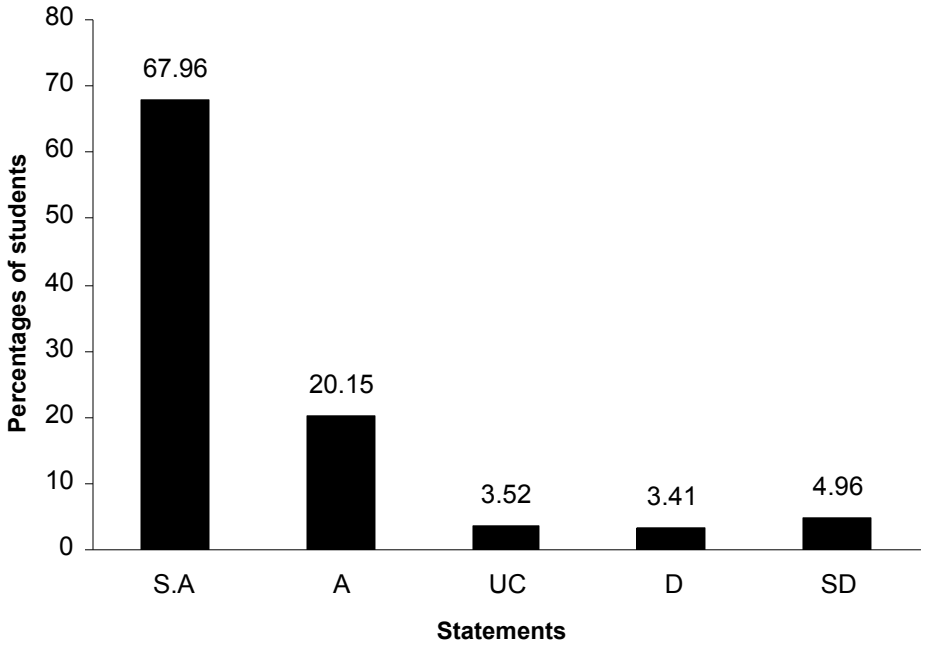
Had the instructor been regular throughout the course



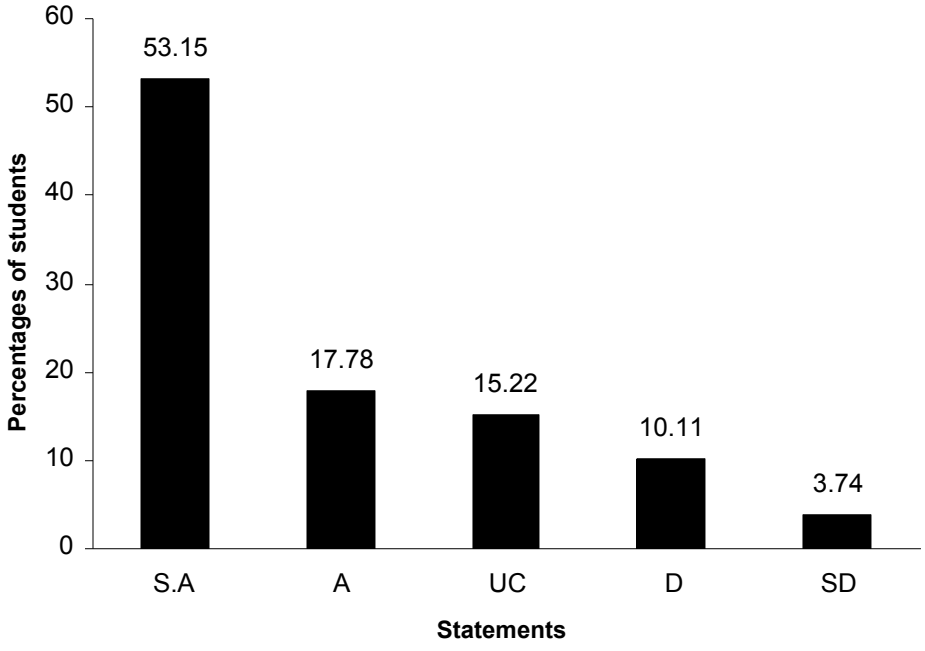
The material in the tutorials was useful



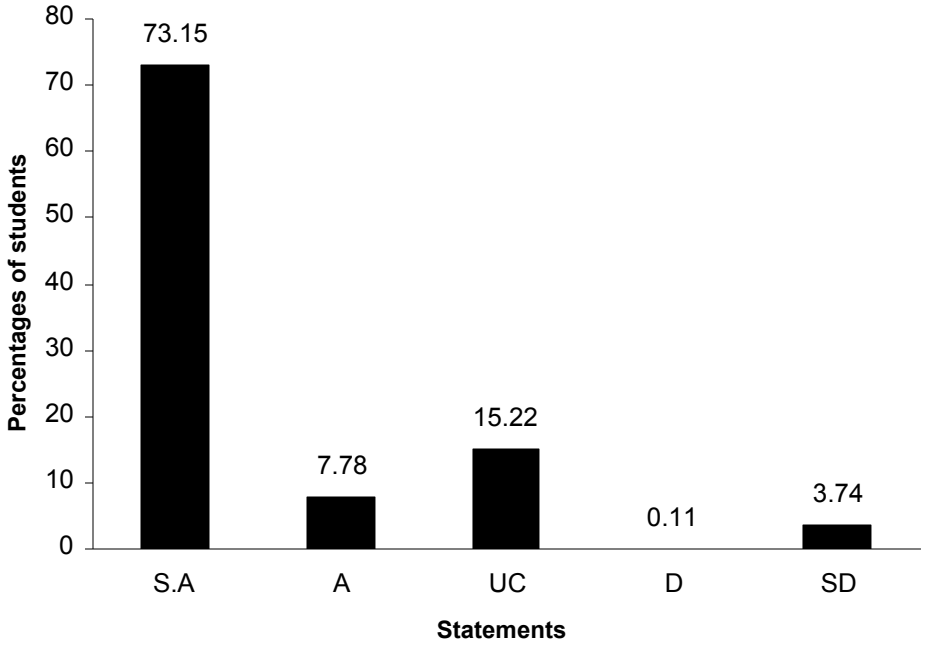
I was happy with the amount of work needed for tutorials



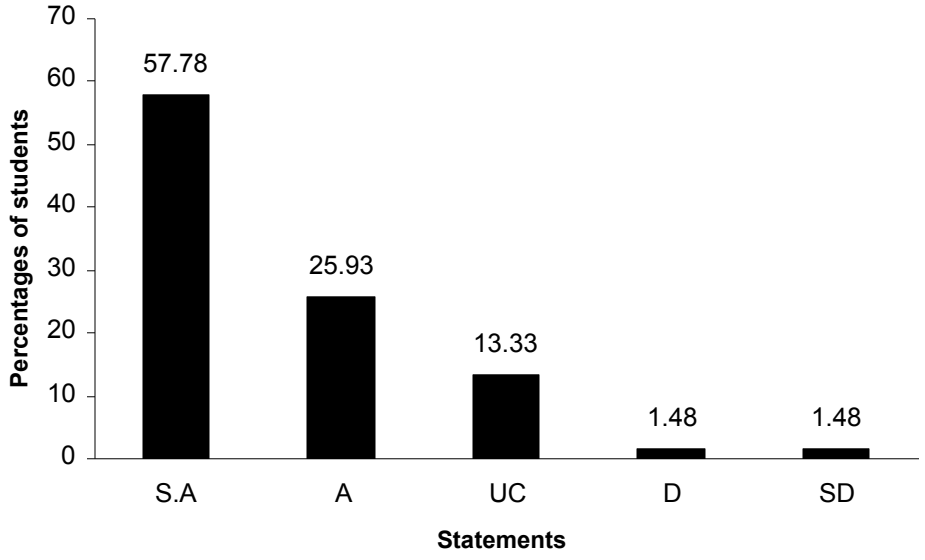
The tutor dealt effectively with my problems



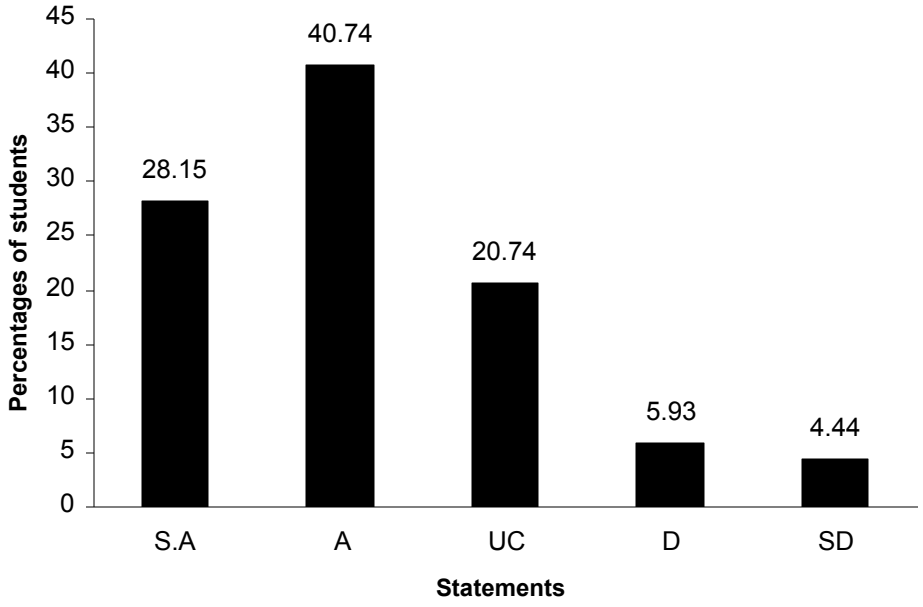
The material in the practicals was useful



The demonstrators dealt effectively with my problems



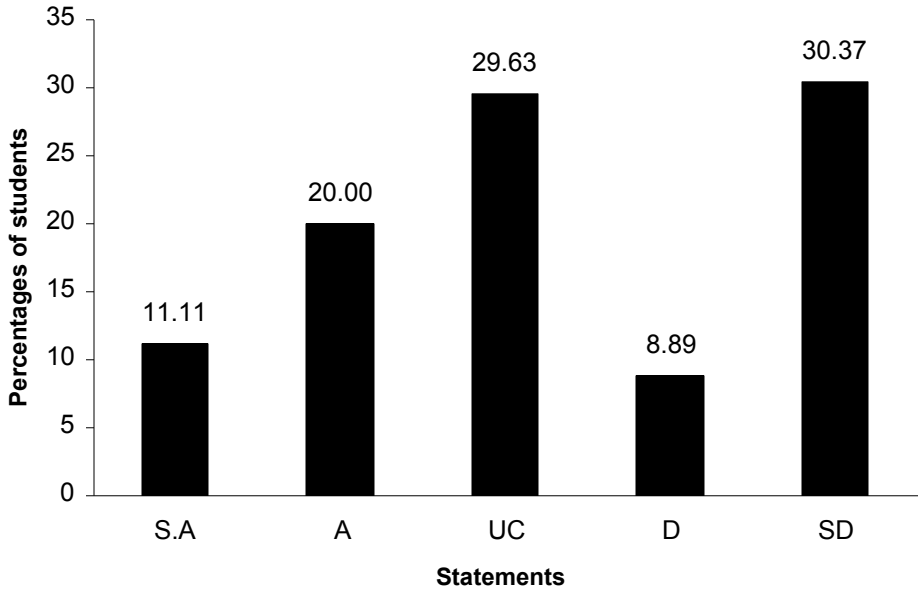
There was a good balance of lectures, tutorials, practical etc.


45
40
35
30
25
20
15
10
5
0
Percentages of students
40.74
28.15
20.74
5.93
4.44
S.A
A
UC
D
SD
Statements

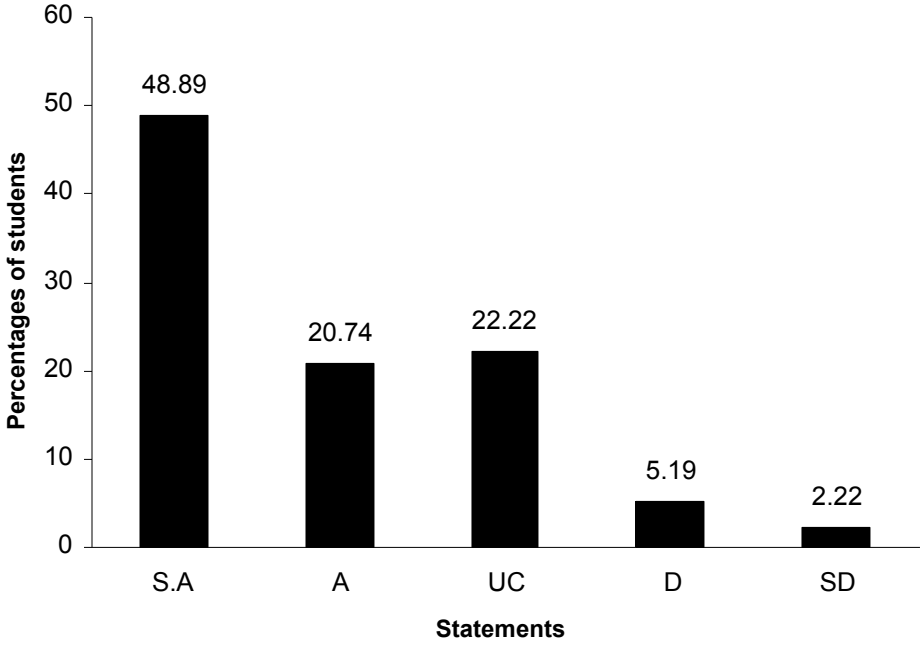
Mr. M. Irfan Teacher Evaluation

Data were collected from 63 students. Data shows that very less students are strongly agreed (11.11%) that the teacher is fair in examination. More than 37% of the students are strongly agreed that the instructor came with good preparation. Similarly, most of the students agreed that instructor demonstrates knowledge of the subject, instructor has completed the whole course, the Instructor provides additional material apart from the textbook, the Instructor gives citations regarding current situations with reference to Pakistani context, the Instructor communicates the subject matter, the Instructor shows respect towards students and encourages class participation effectively, the Instructor maintains an environment that is conducive to learning, the Instructor arrives on time, the Instructor returns the graded scripts etc. in a reasonable amount of time, the Instructor was available during the specified office hours and for after class consultations, the Subject matter presented in the course has increased your knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated

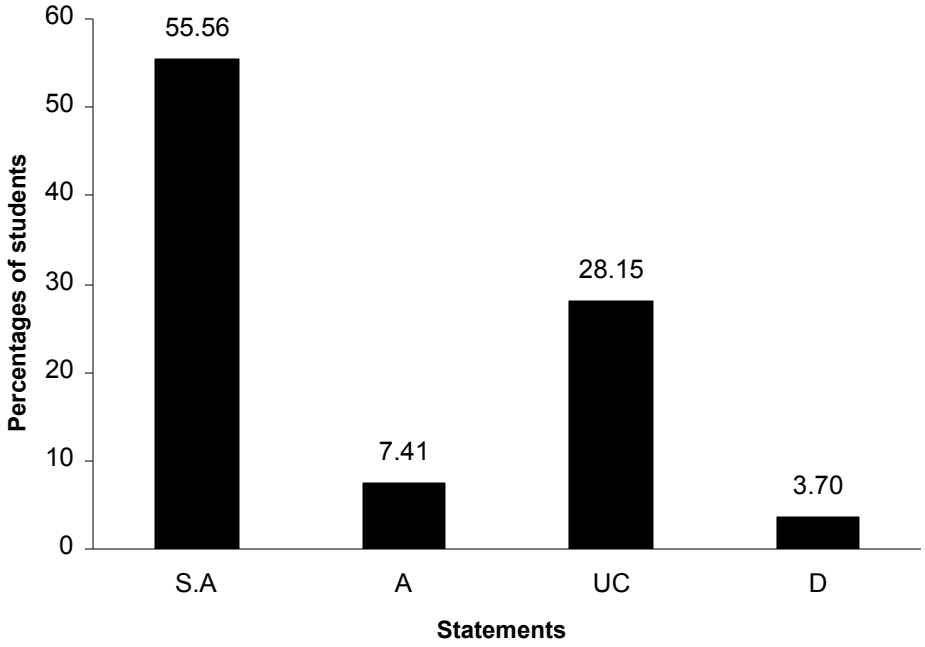
The Instructor is fair in examination



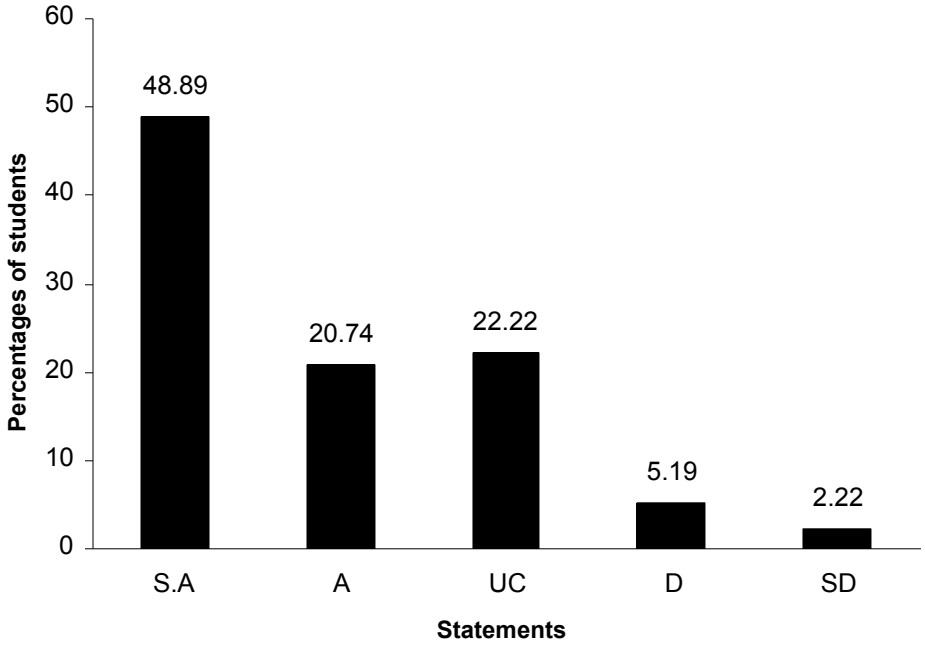
The Instructor is prepared for each class



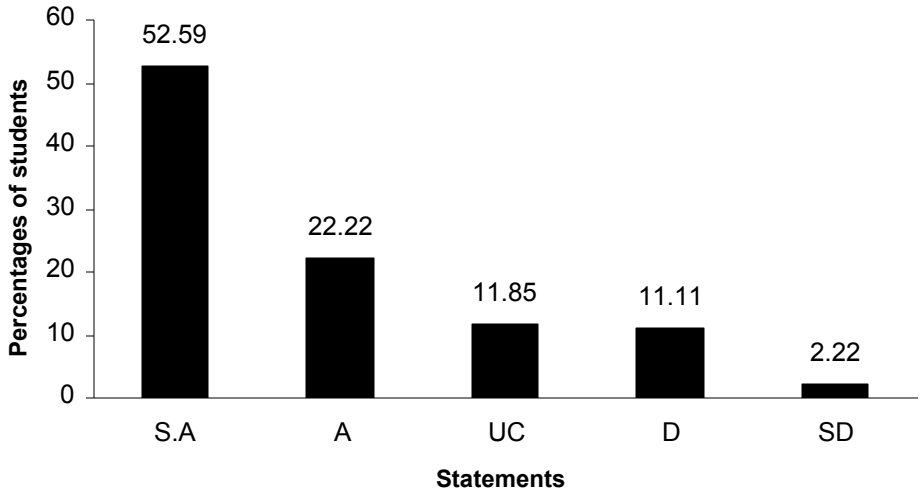
The Instructor demonstrates knowledge of the subject



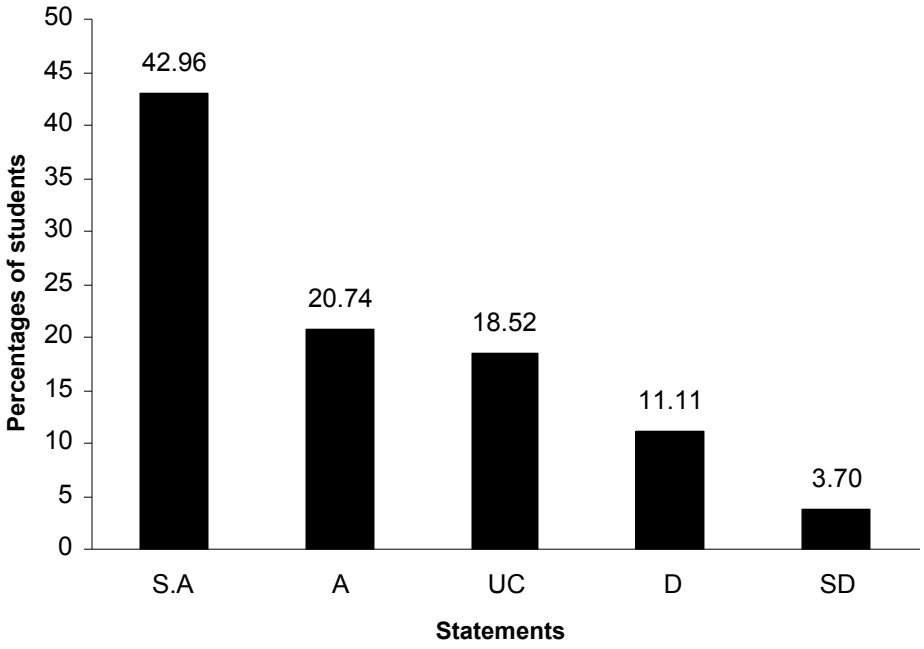
The Instructor has completed the whole course



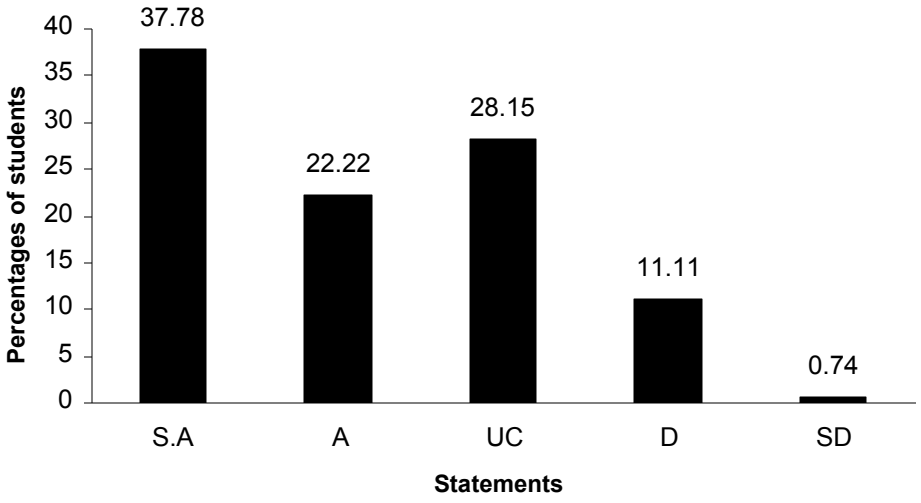
The Instructor provides additional material apart from the textbook



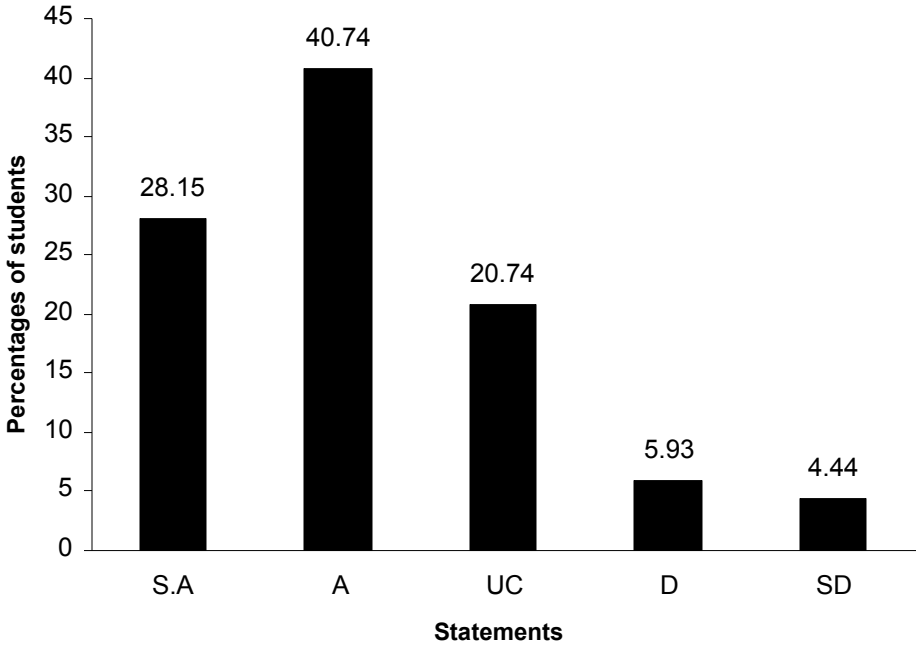
The Instructor gives citations regarding current situations with reference to Pakistani context



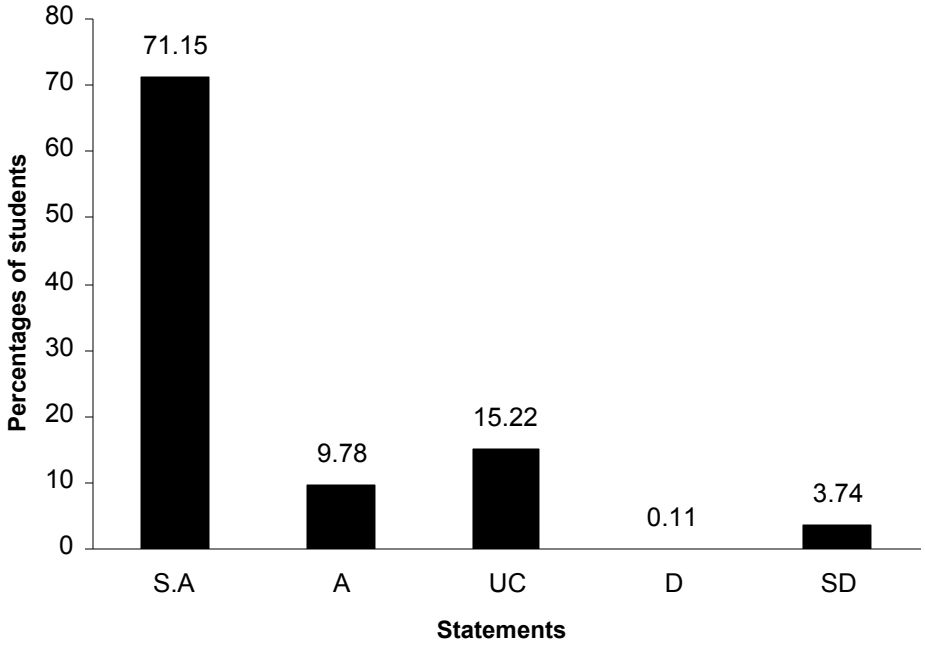
The Instructor communicates the subject matter effectively



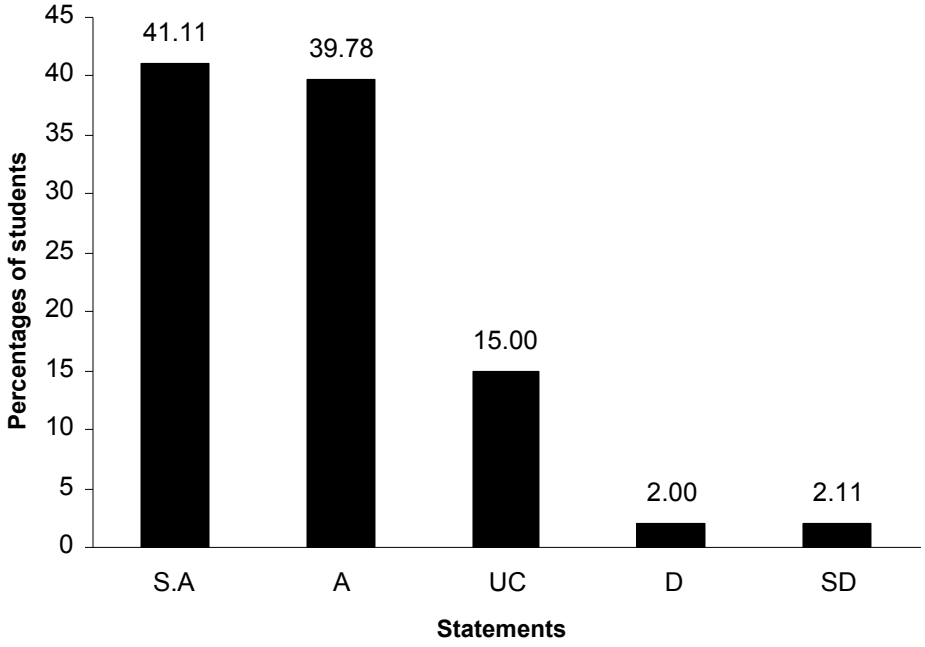
The Instructor shows respect towards students and encourages class participation



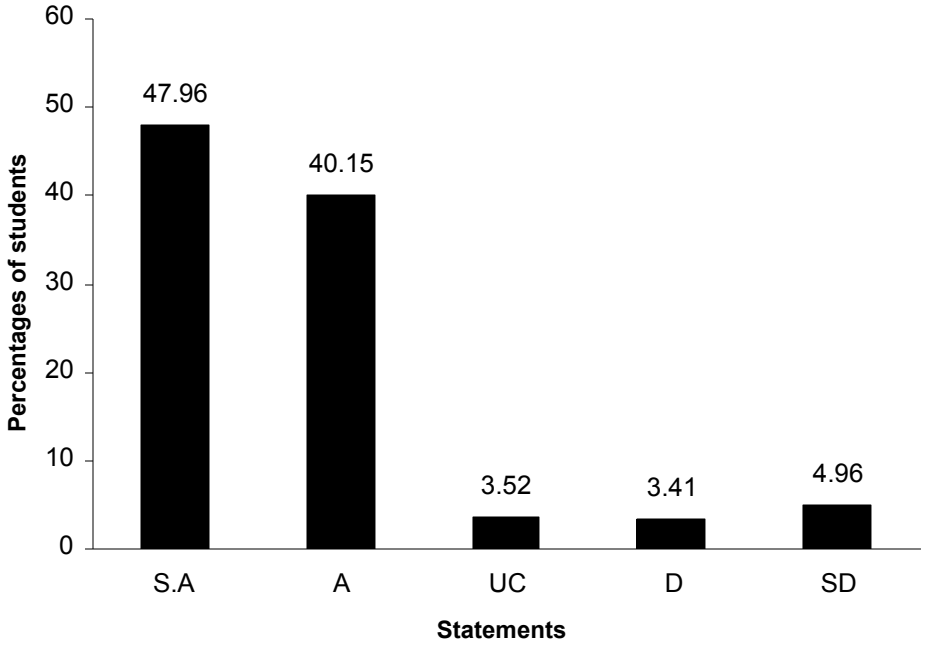
The Instructor maintains an environment that is conducive to learning



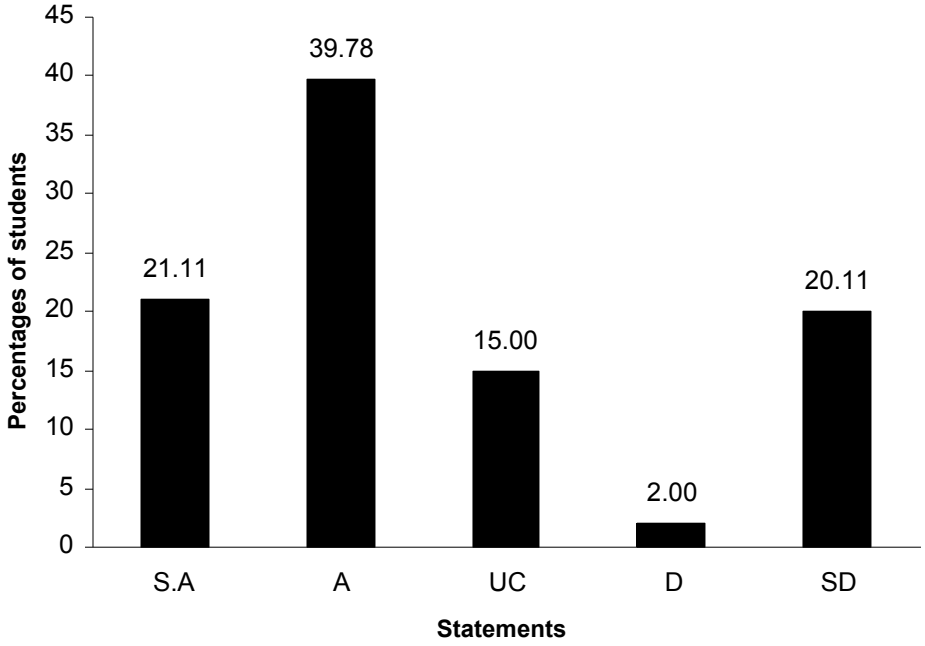
The Instructor arrives on time



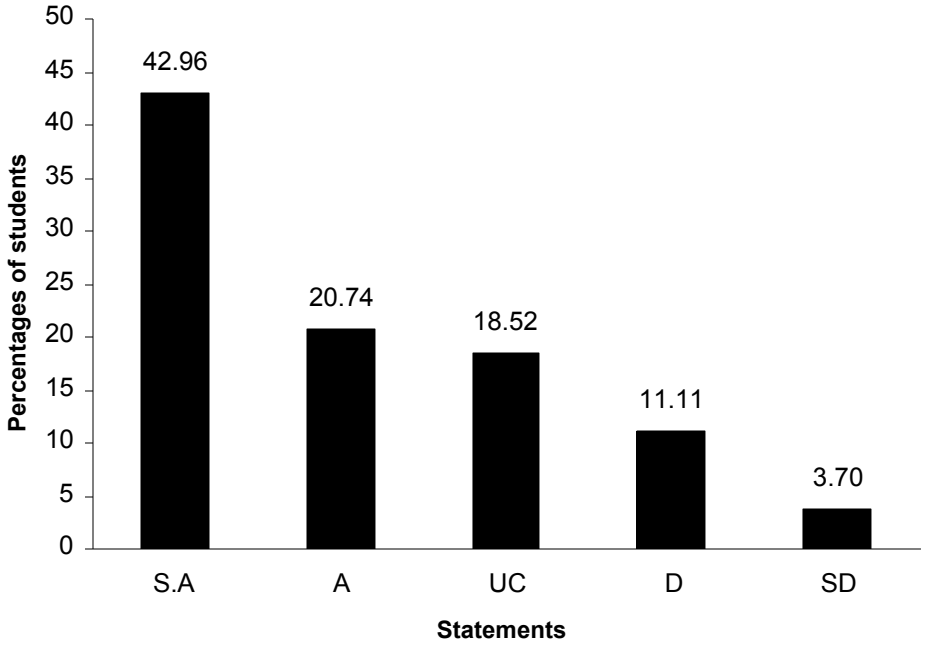
The Instructor is fair in examination



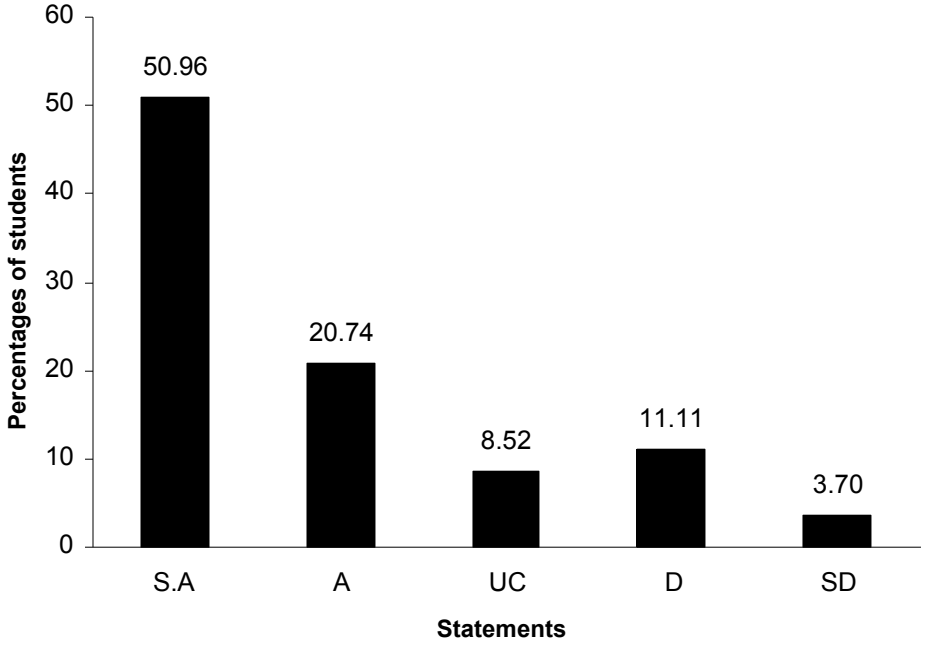
The Instructor returns the graded scripts etc. in a reasonable amount of time



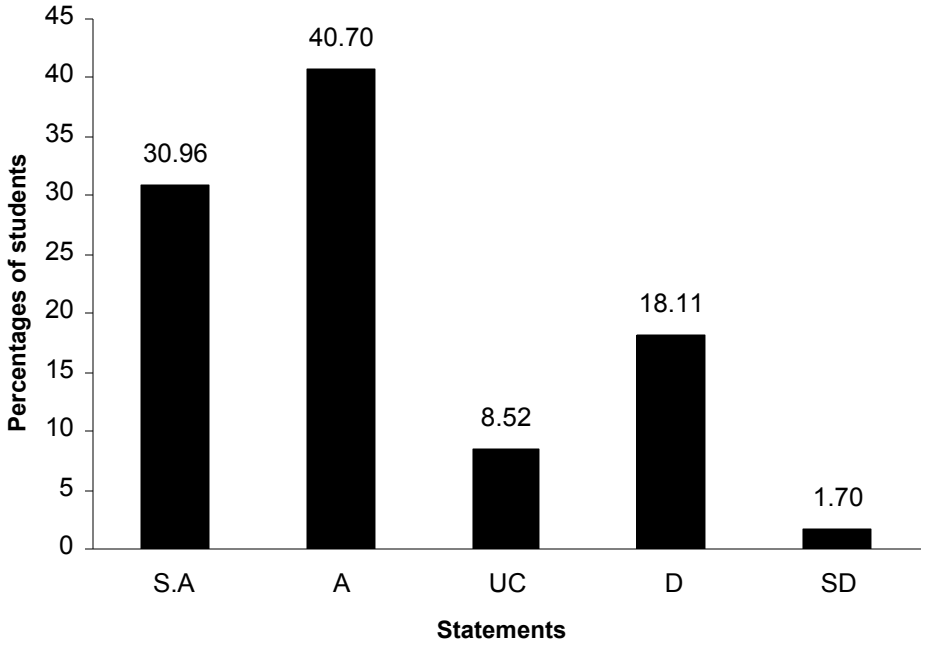
The Instructor was available during the specified office hours and for after class consultations



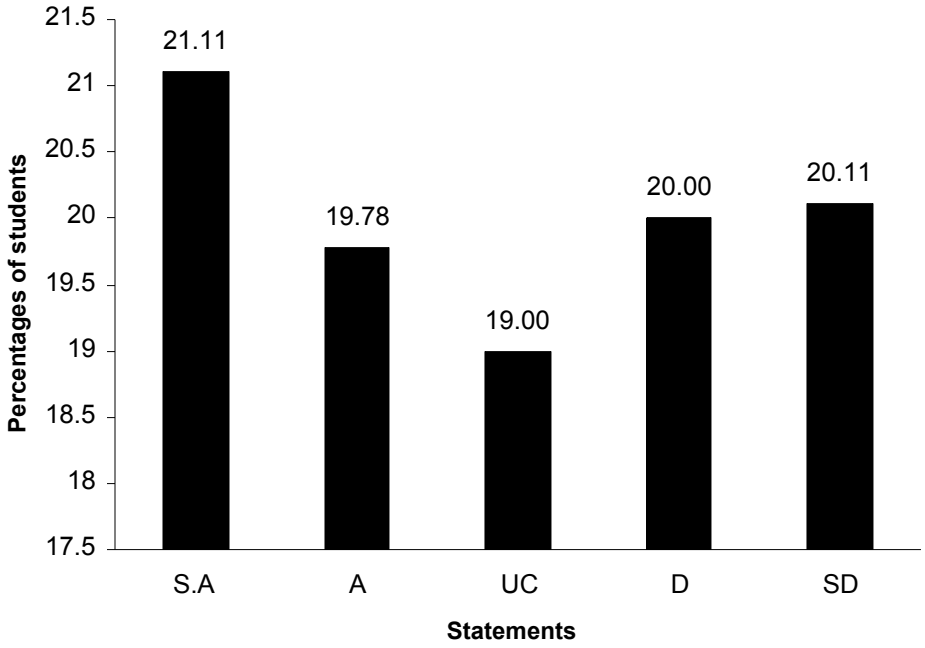
The Subject matter presented in the course has increased your knowledge of the subject



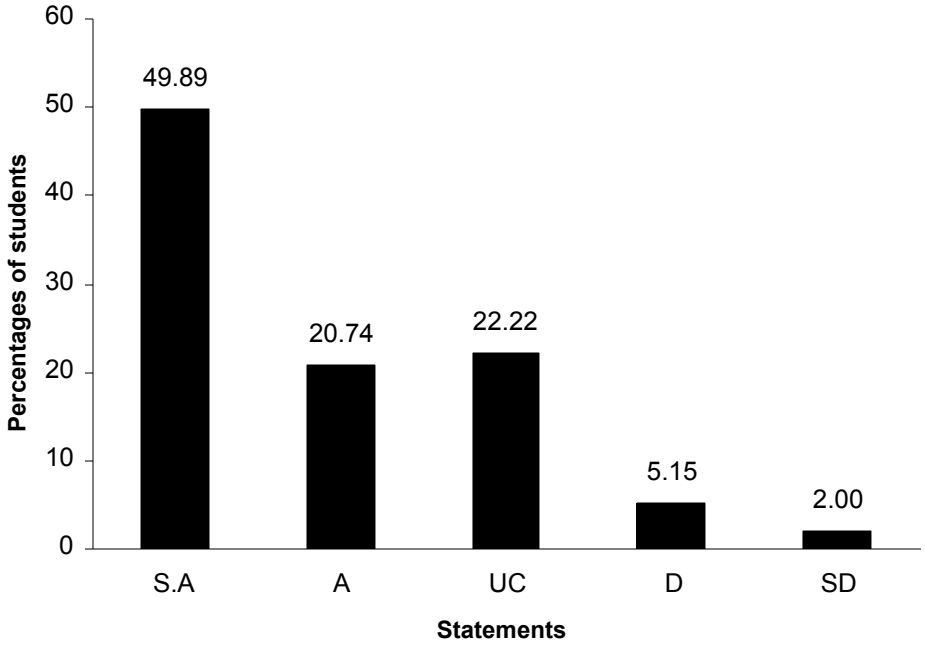
The syllabus clearly states course objectives requirements, procedures and grading criteria



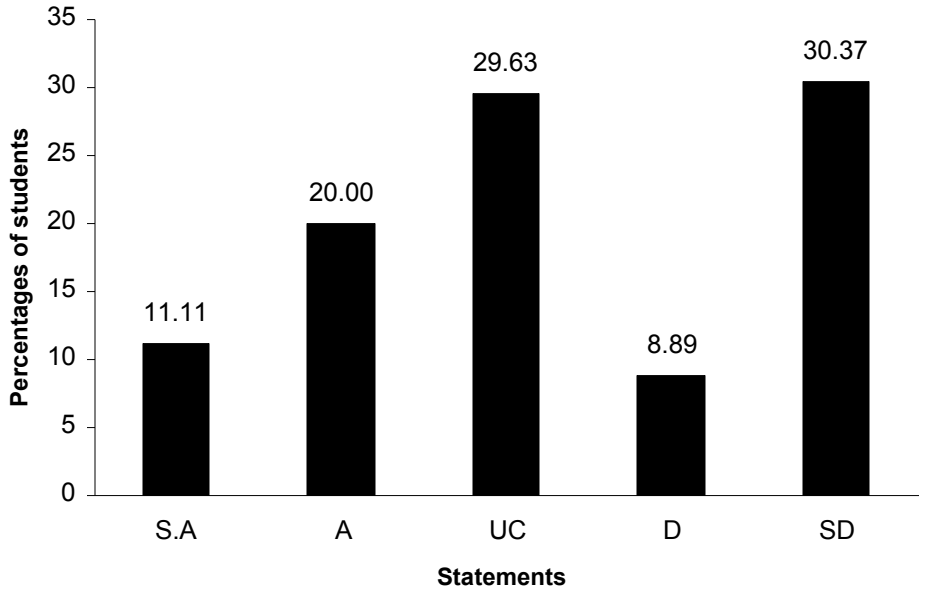
The course integrates theoretical course concepts with real-world applications



The assignments and exams covered the materials presented in the course



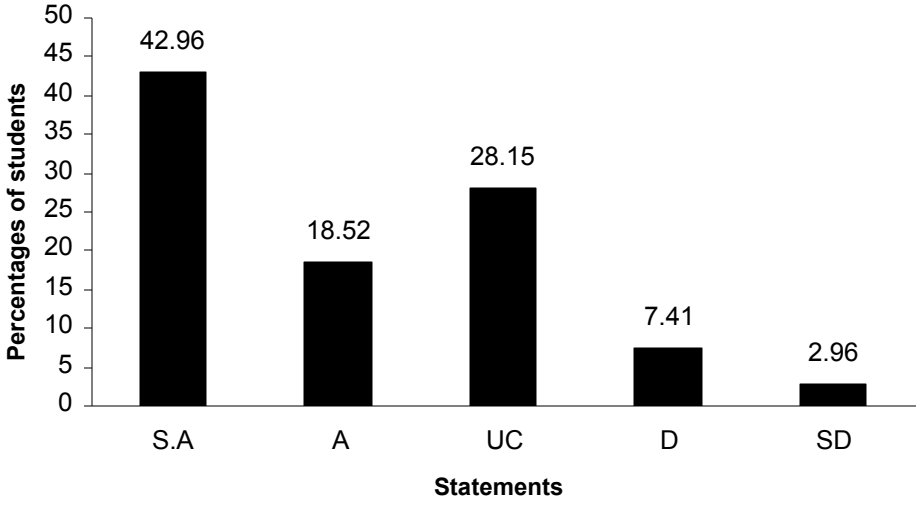
The course material is modern and updated



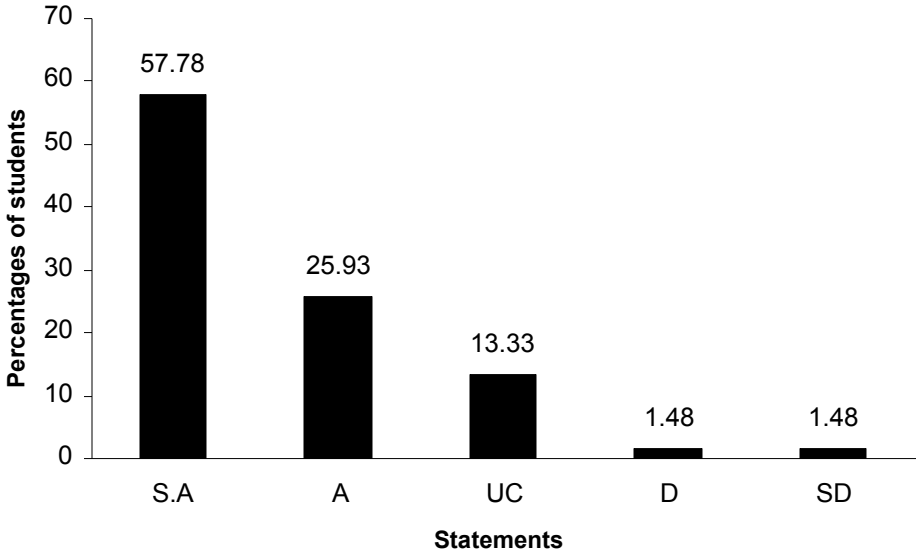
ZOOL-704	Comparative Animal Physiology	3(2-2)	Mr. M. Irfan

Data were collected from 70 students. Data shows that the students are strongly agreed (42.96%) that the course objectives were clear. More than 52% of the students are strongly agreed that the course workload was manageable, well organized (e.g. timely access to materials, notification of changes, etc.). The students are strongly agreed that the approximate level of student's attendance during the whole course was higher; students participated actively in the course and have made progress in this course. Most of the students think the course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.). Similarly, they are agreed that the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials (Lesson Plans, Course Notes etc.) were relevant and useful, recommended reading books etc. were relevant and appropriate. They described that the provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area. According to most of the students, the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable, the material was well organized and presented, the instructor was responsive to student needs and problems, instructor was regular throughout the course and the material in the tutorials was useful

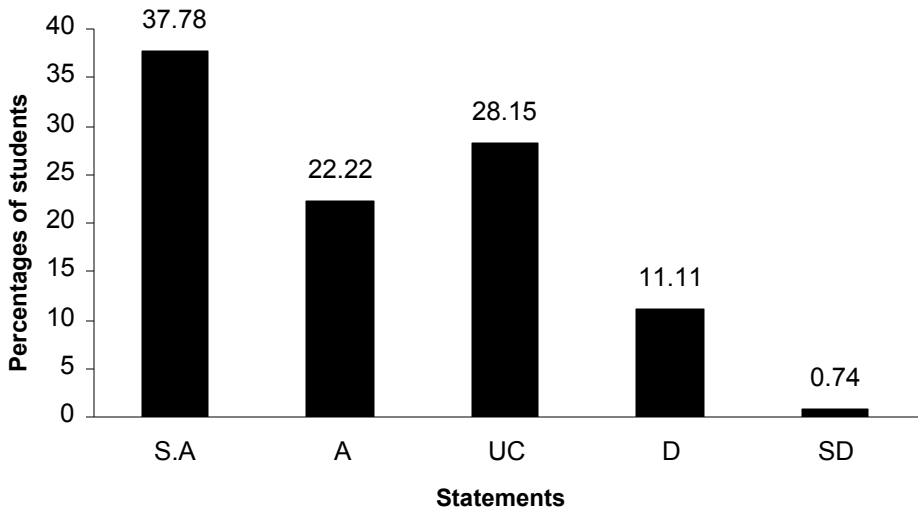
The Course objectives were clear



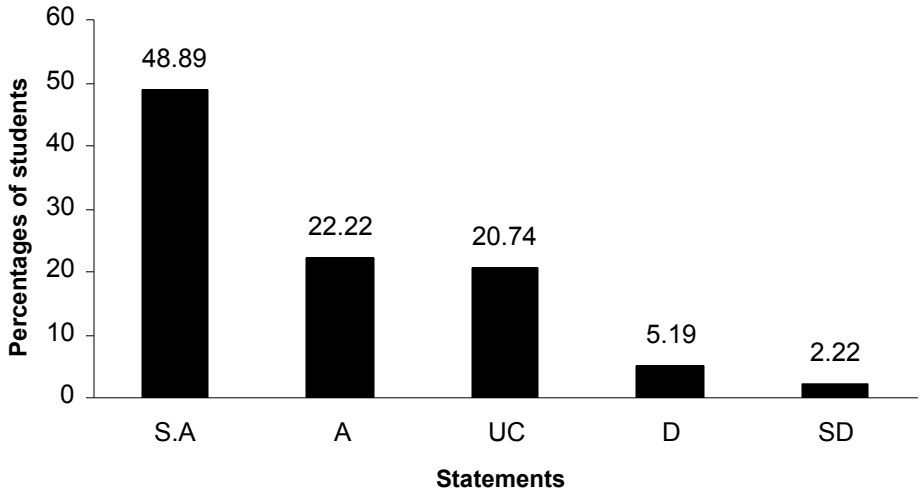
The Course workload was manageable



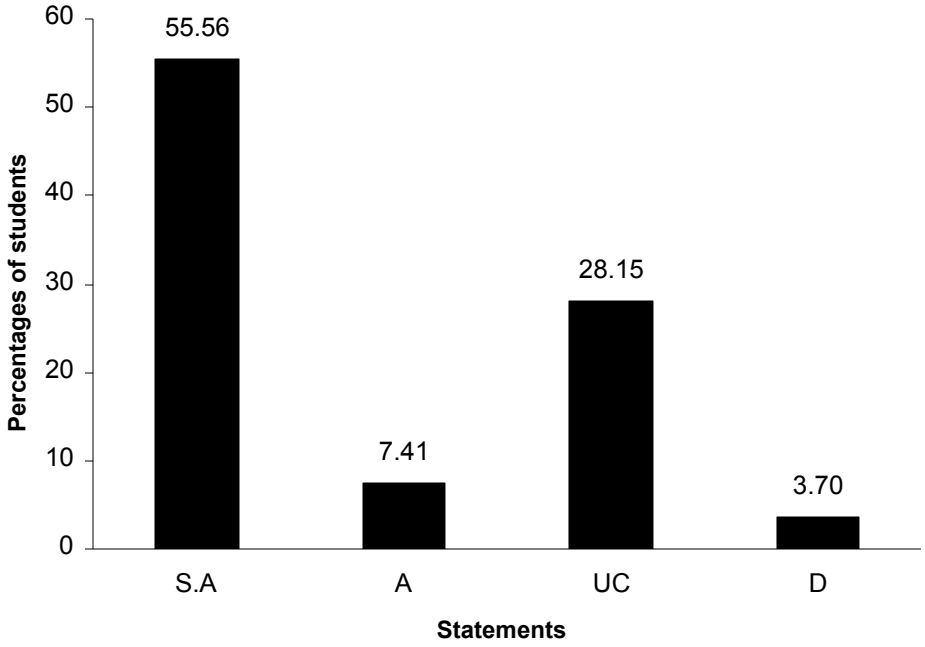
The Course was well organized (e.g. timely access to materials, notification of changes, etc.)



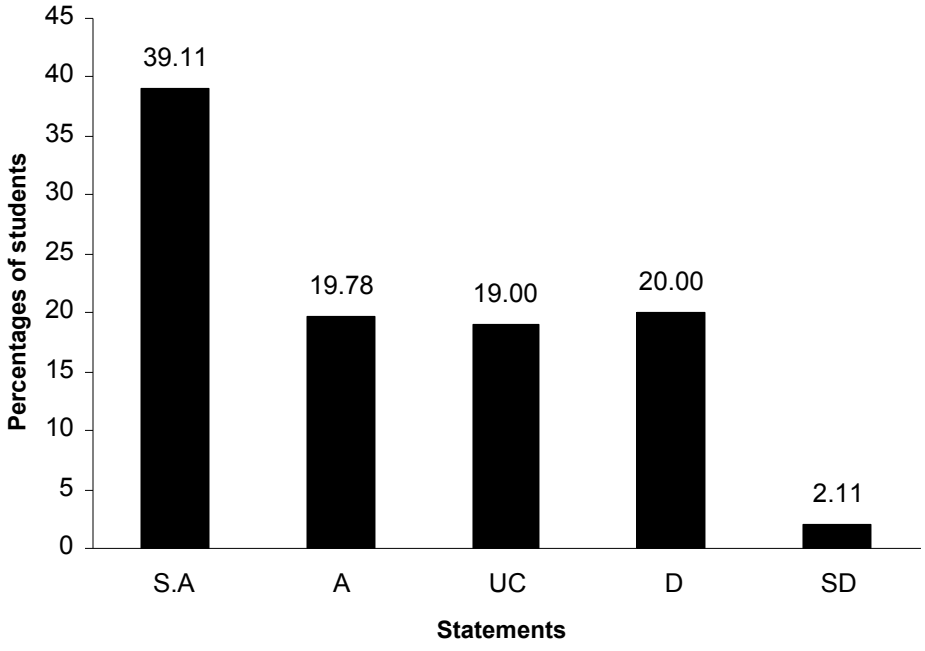
Approximate level of your own attendance during the whole Course



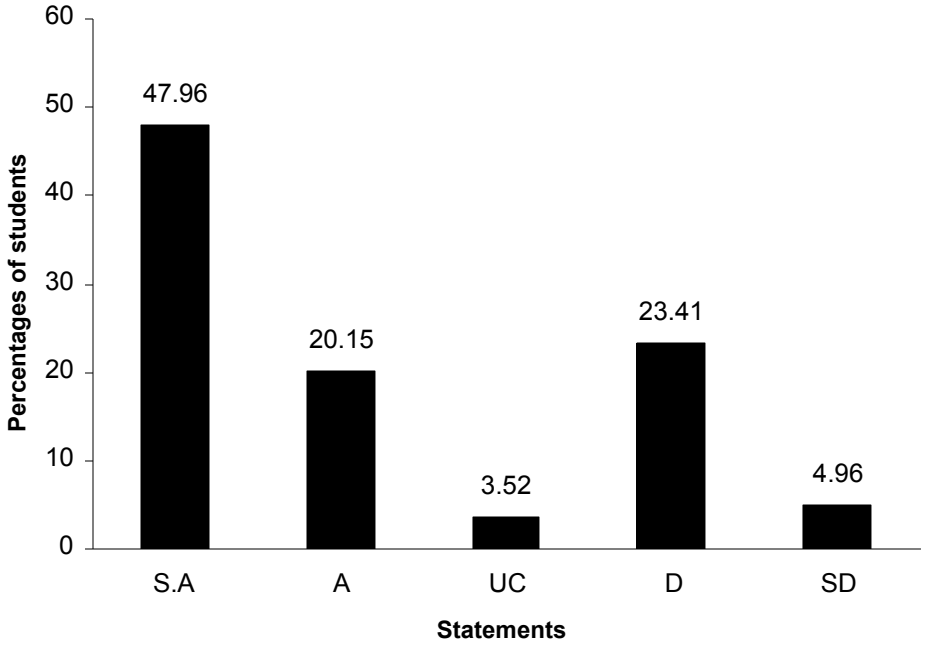
I participated actively in the Course



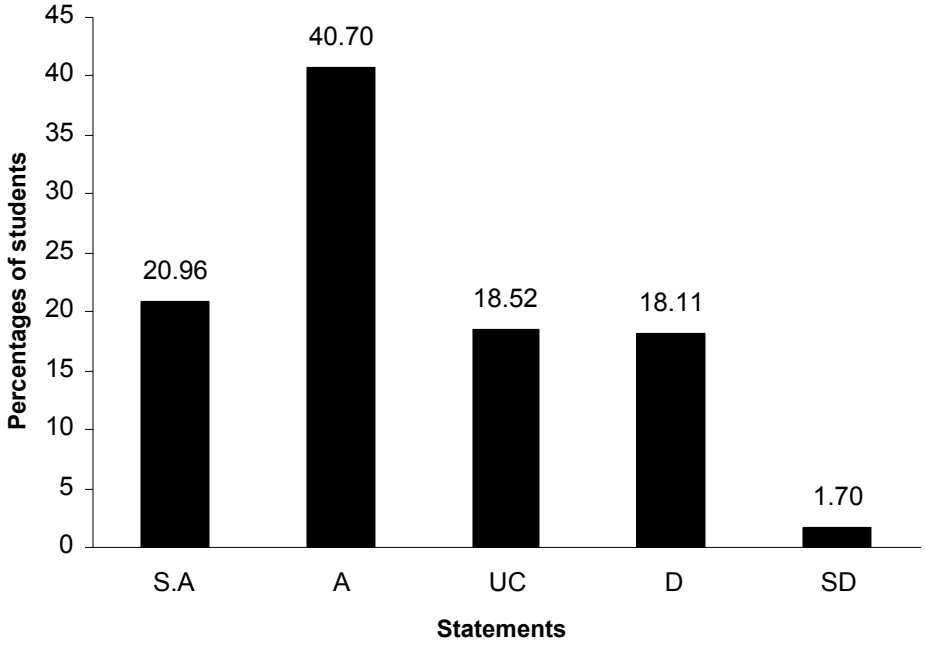
I think I have made progress in this Course



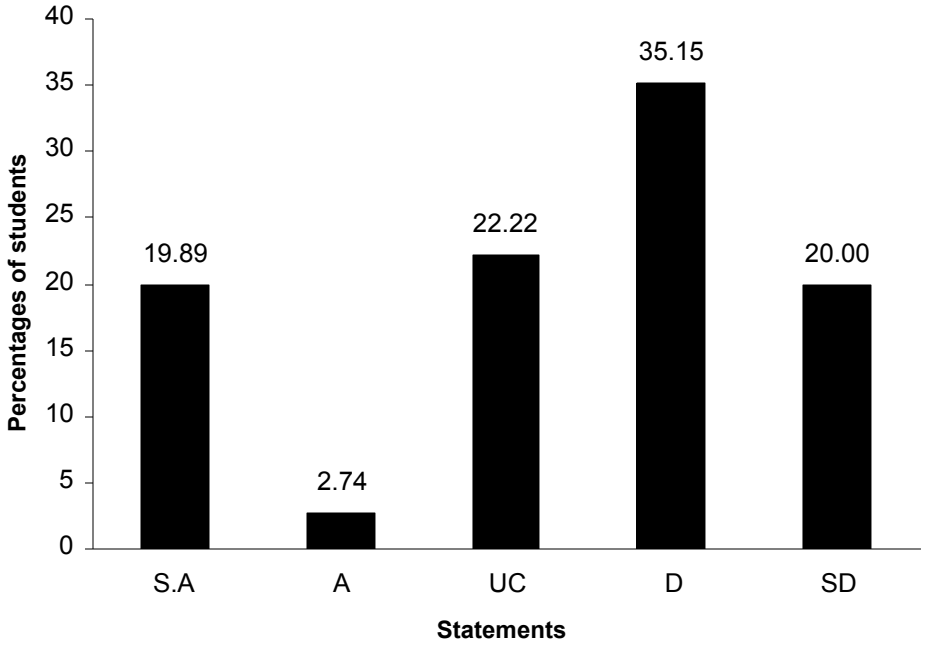
I think the Course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.)



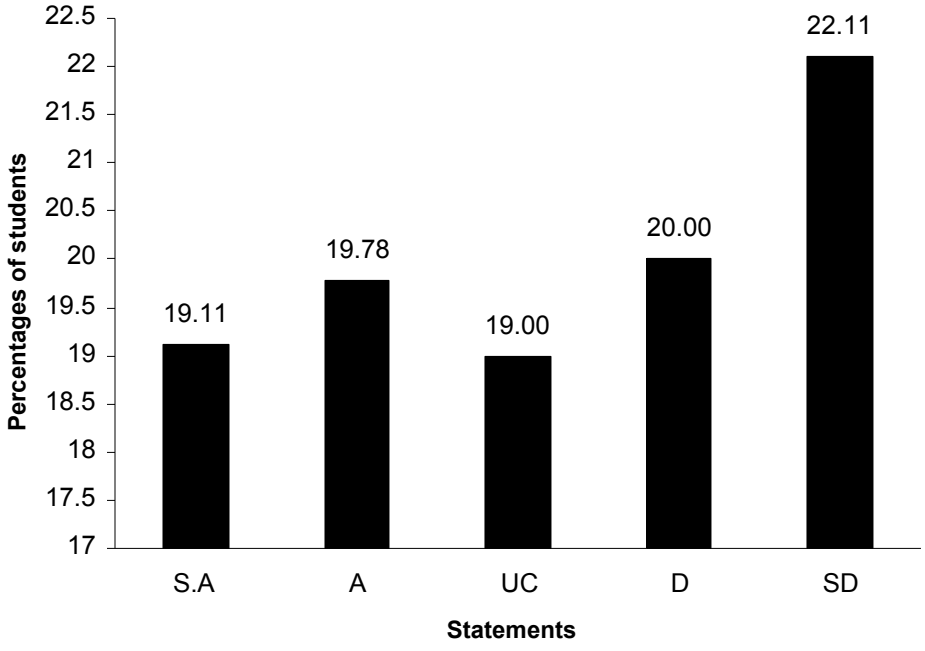
The learning and teaching methods encouraged participation



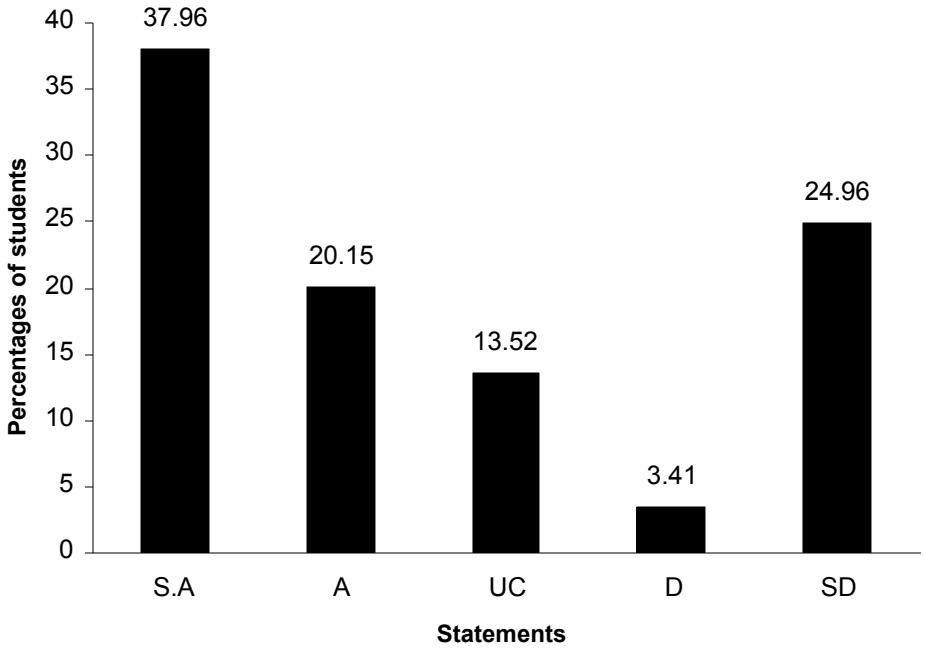
The overall environment in the class was conductive to learning



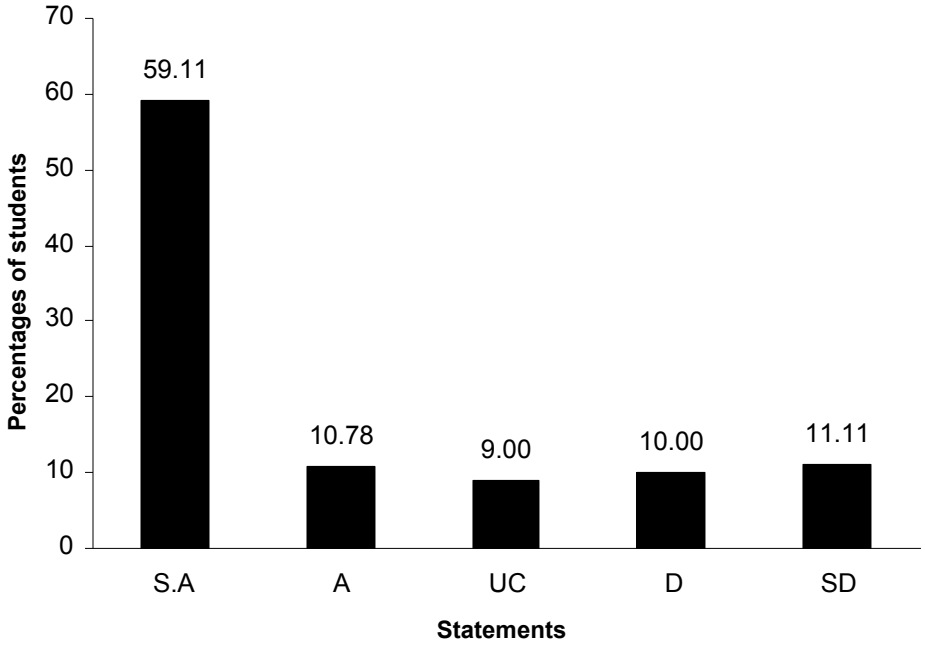
Classrooms were satisfactory



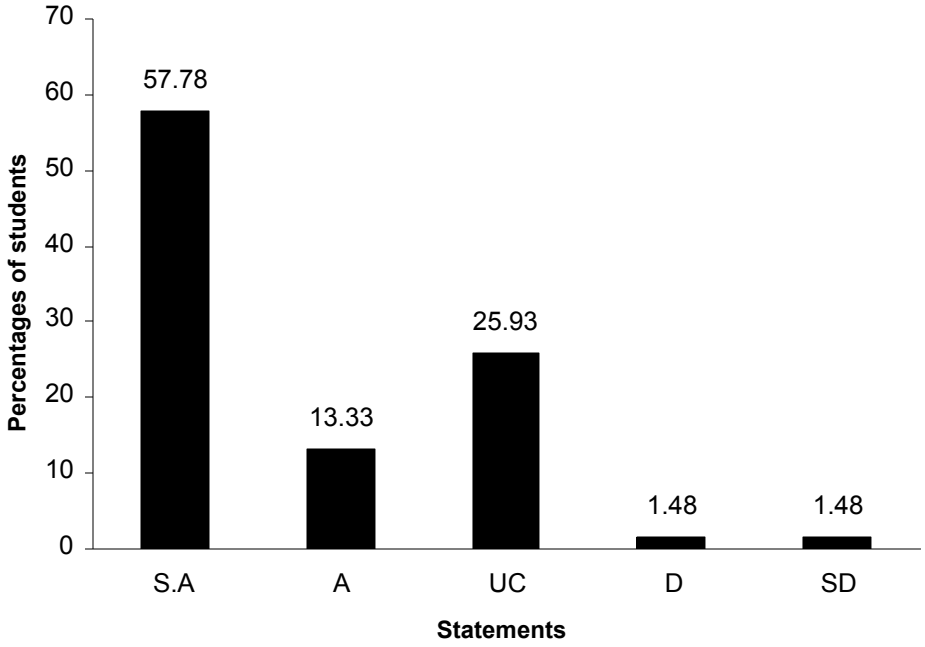
1. **Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful**



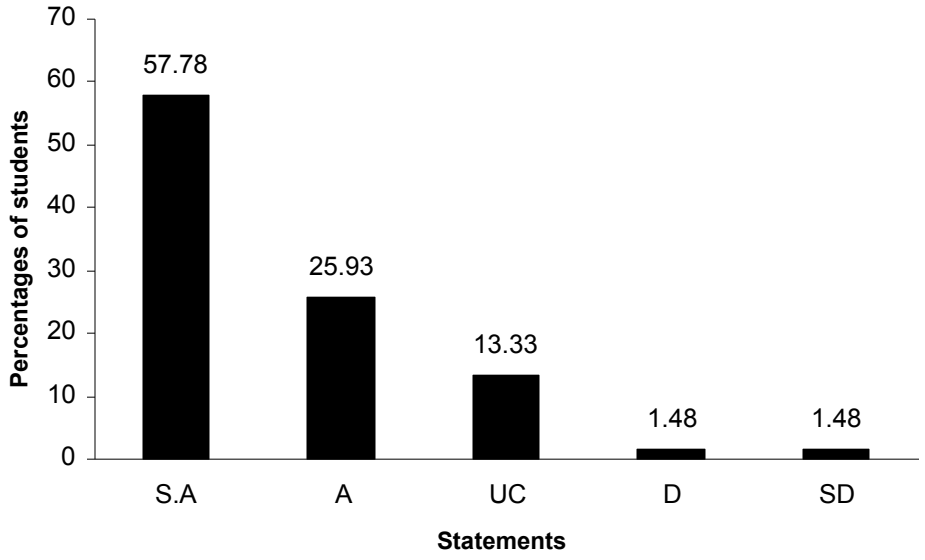
Recommended reading Books etc. were relevant and appropriate



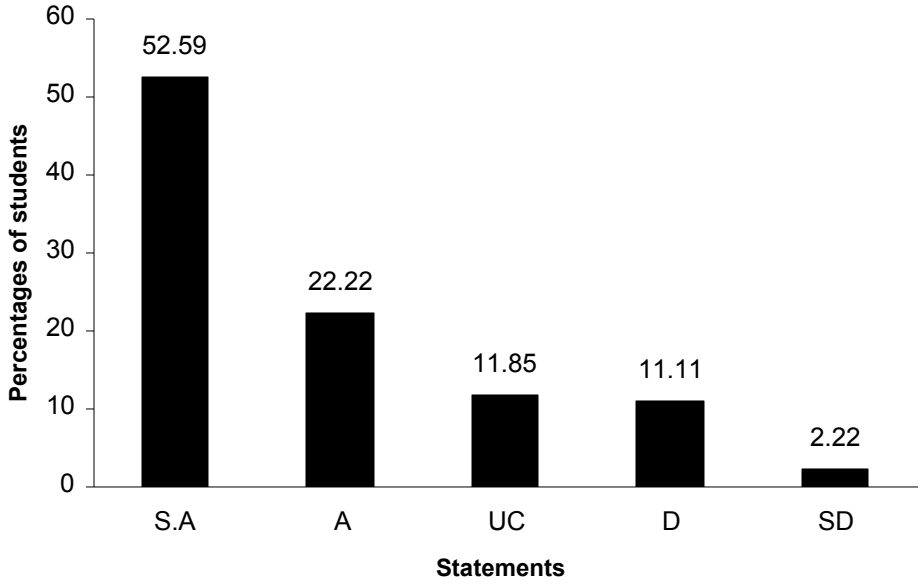
The provision of learning resources in the library was adequate and appropriate



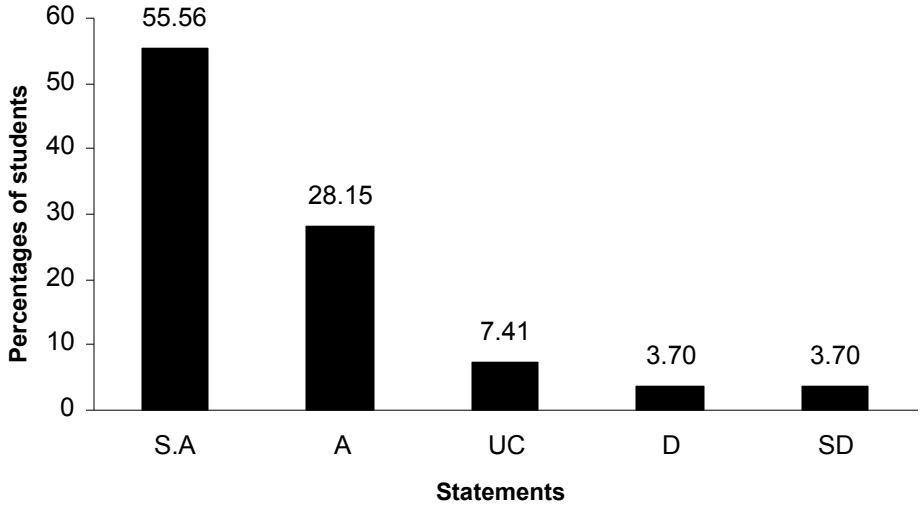
The provision of learning resources on the Web was adequate and appropriate



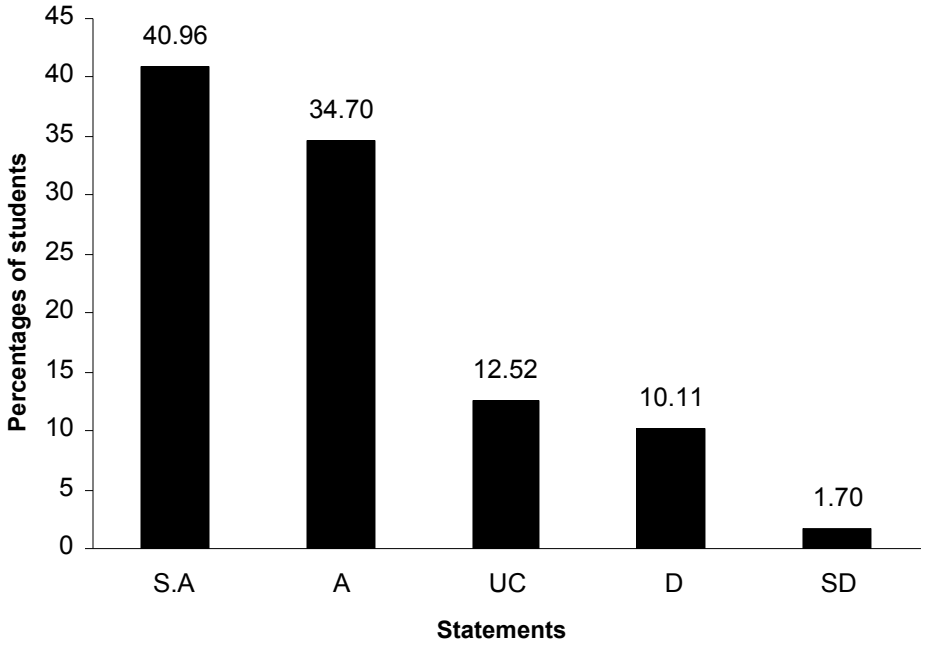
The Course stimulated my interest and thought on the subject area



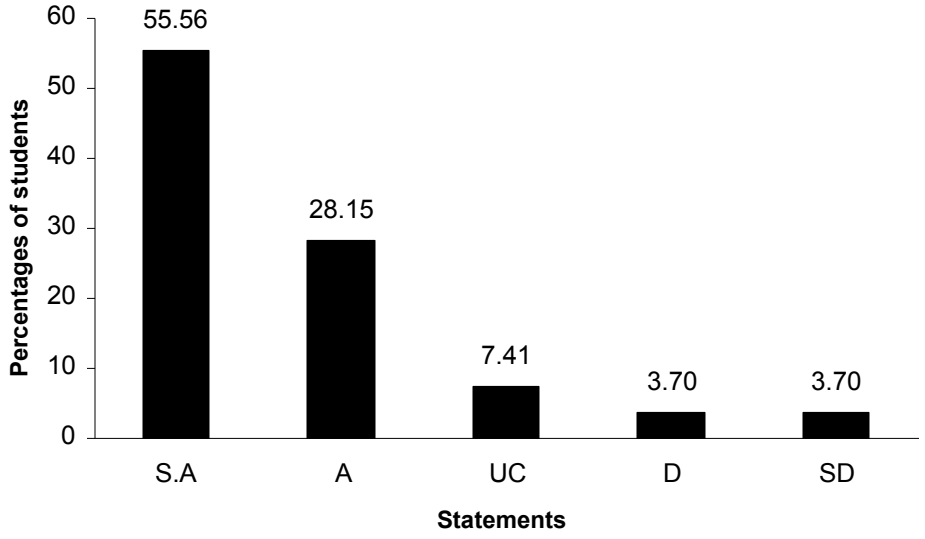
The pace of the Course was appropriate



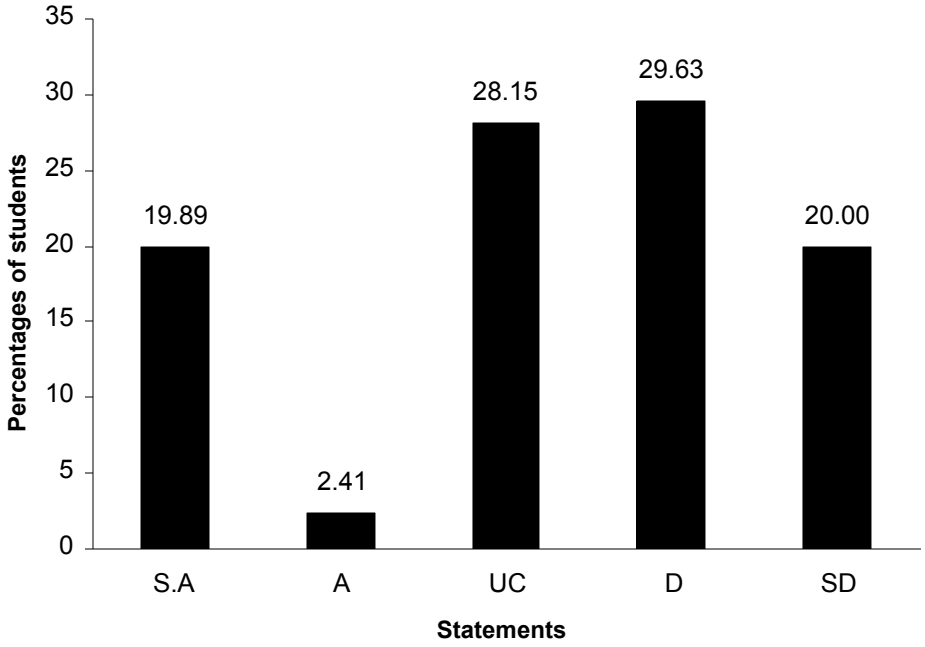
Ideas and concepts were presented clearly



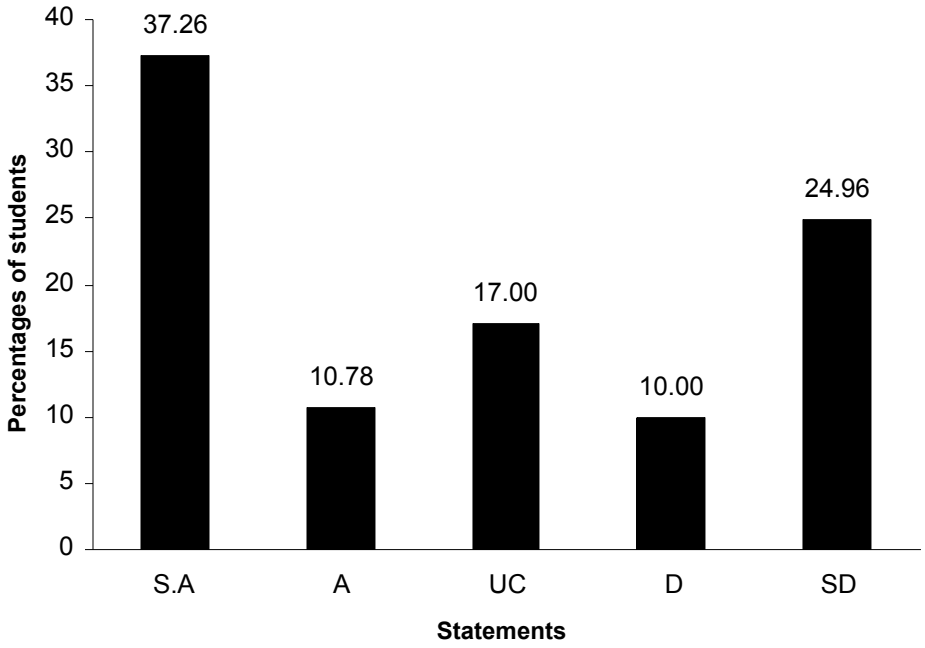
The method of assessment were reasonable



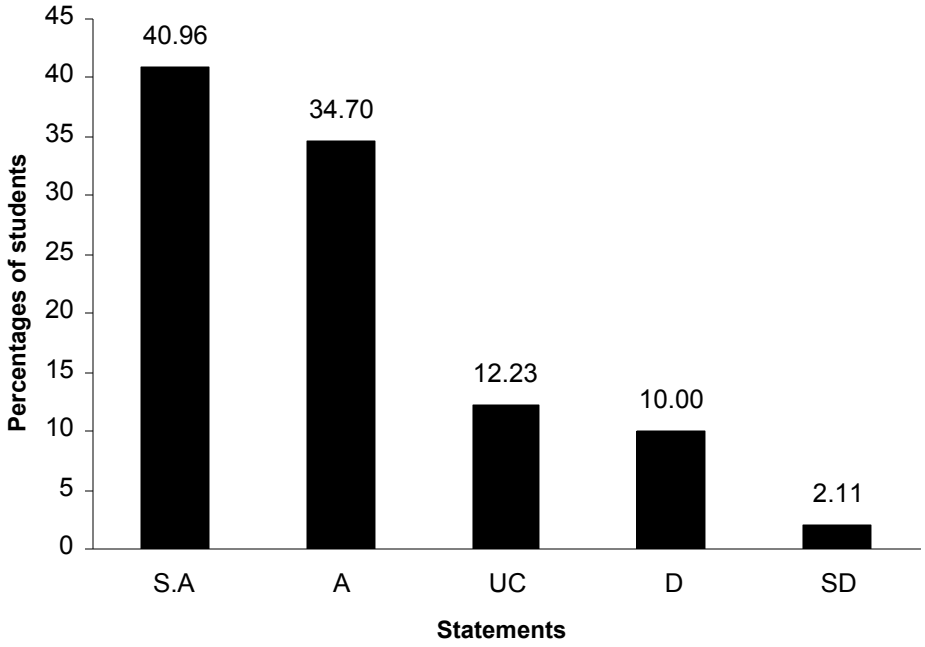
Feedback on assessment was timely



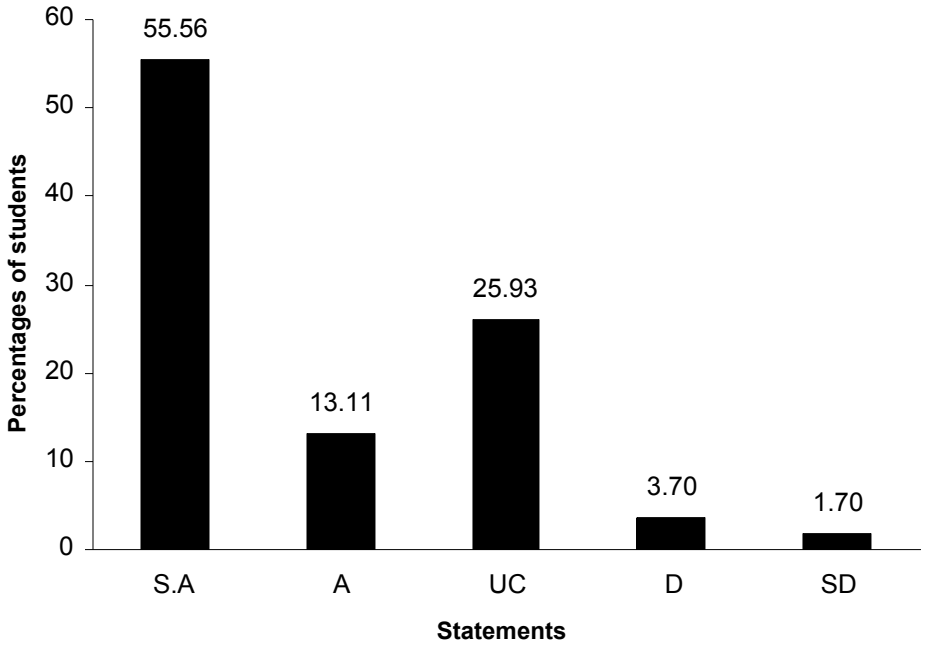
Feedback on assessment was helpful



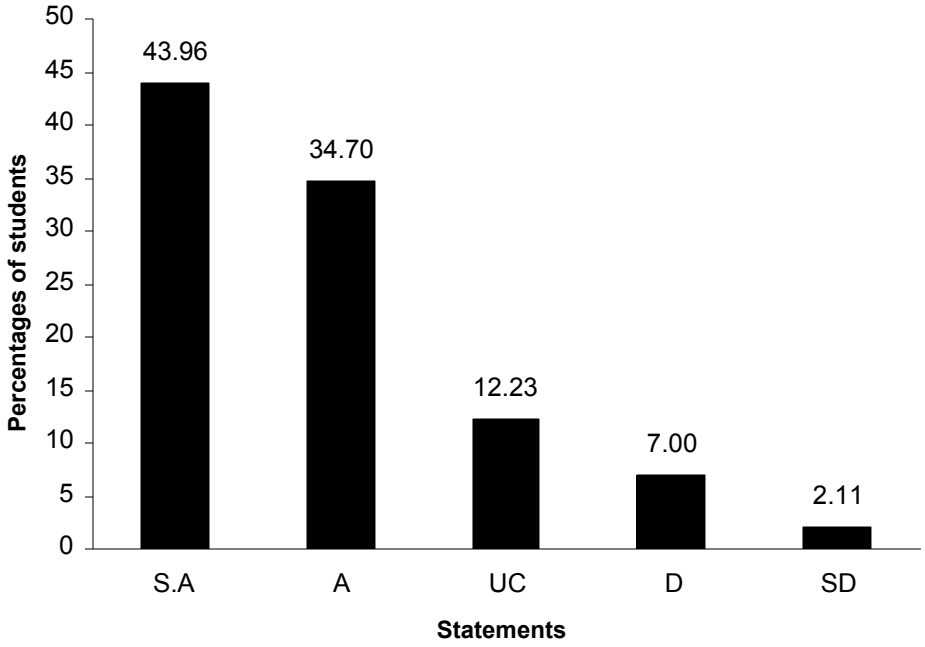
I understood the lectures



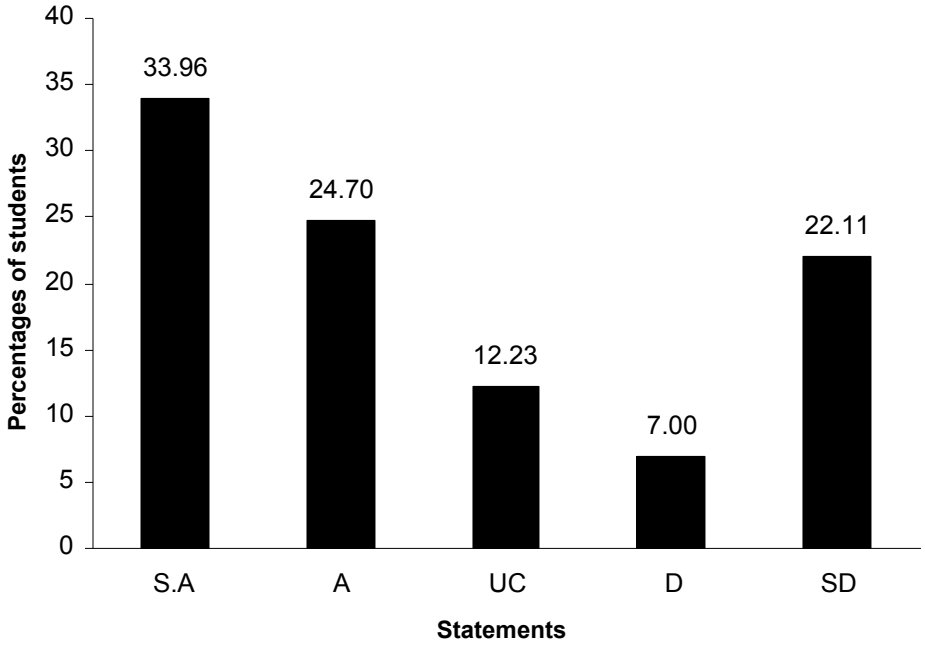
The material was well organized and presented



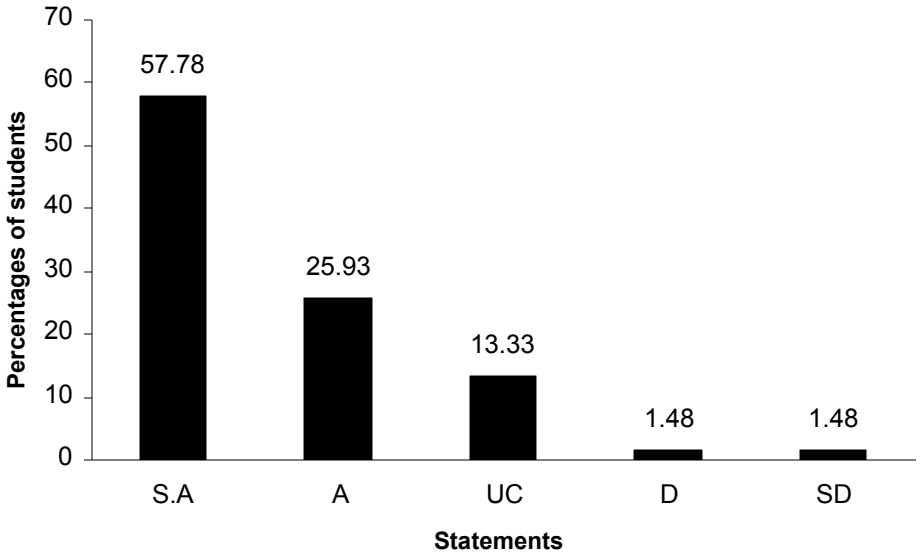
Instructor was responsive to student needs and problems



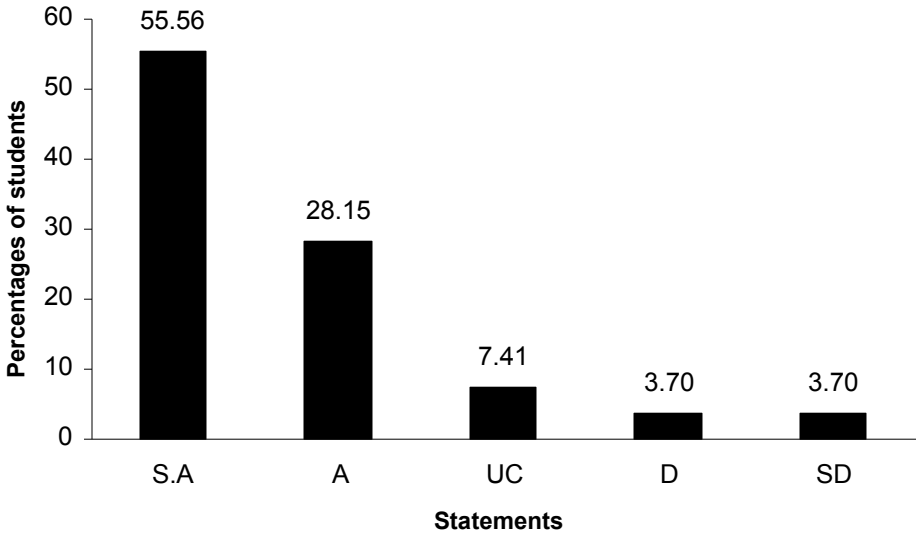
Had the instructor been regular throughout the course



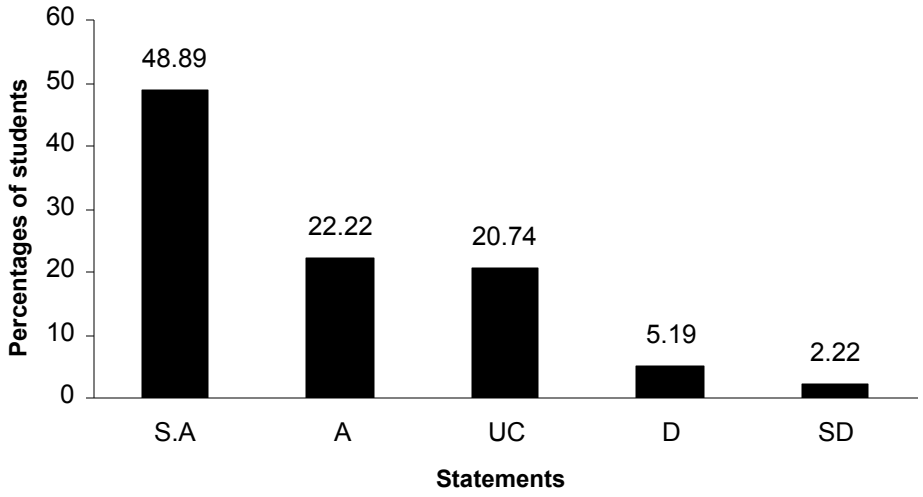
The material in the tutorials was useful



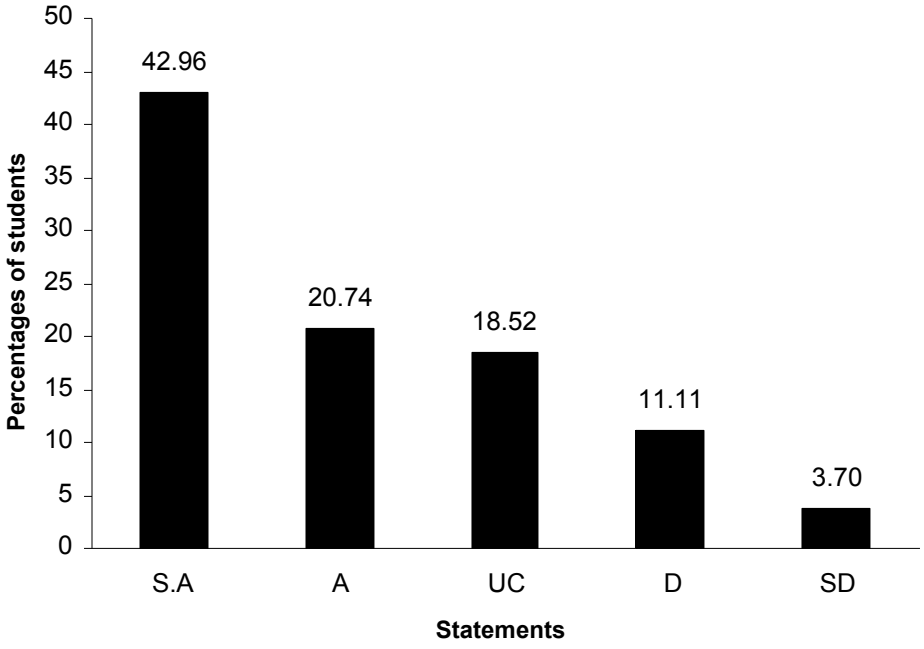
I was happy with the amount of work needed for tutorials



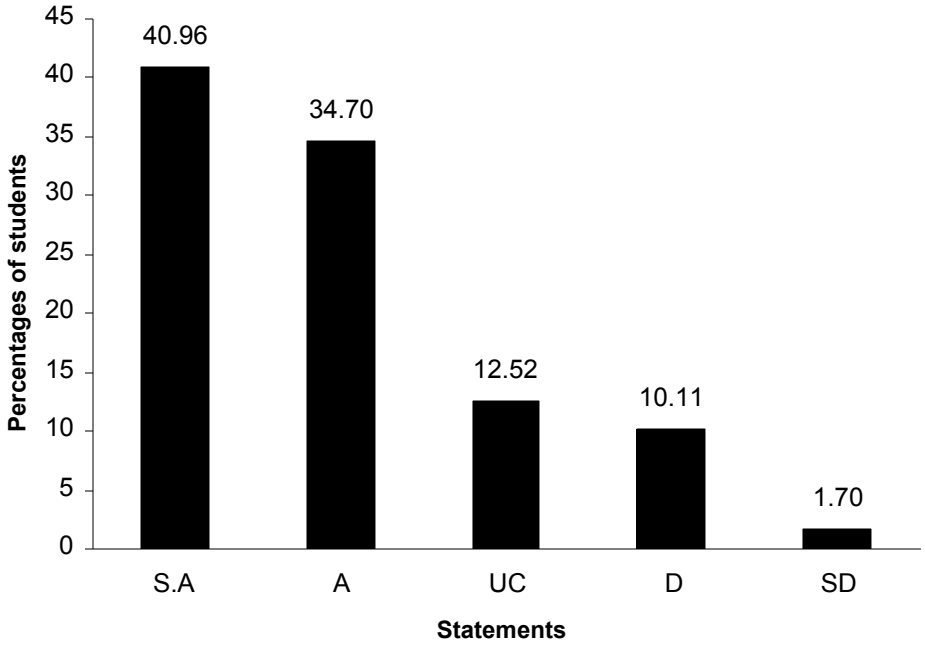
The tutor dealt effectively with my problems



The material in the practicals was useful



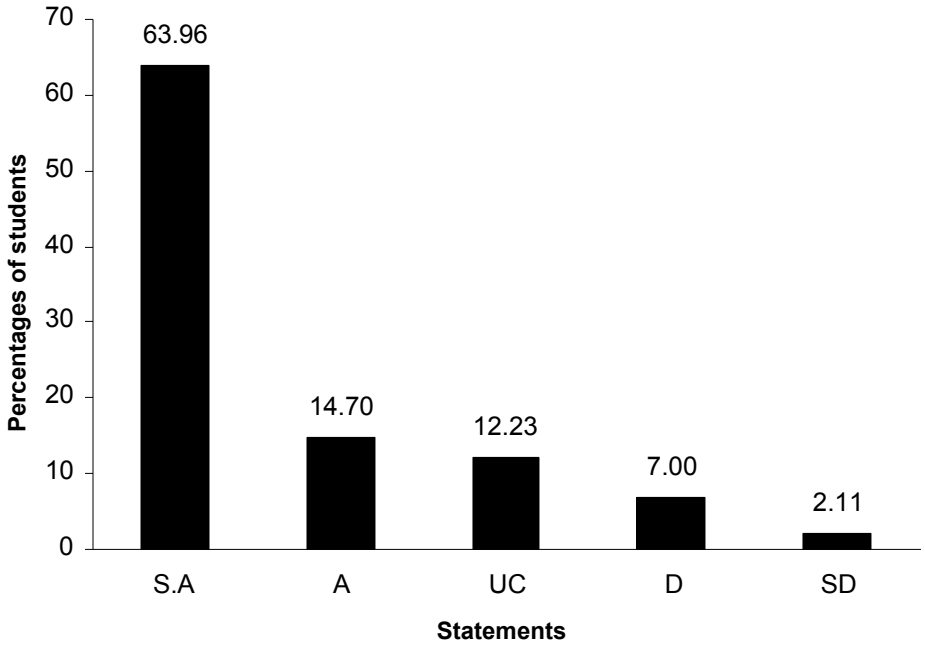
The demonstrators dealt effectively with my problems


45
40
35
30
25
20
15
10
5
0
Percentages of students
40.96
34.70
12.52
10.11
1.70
S.A
A
UC
D
SD
Statements

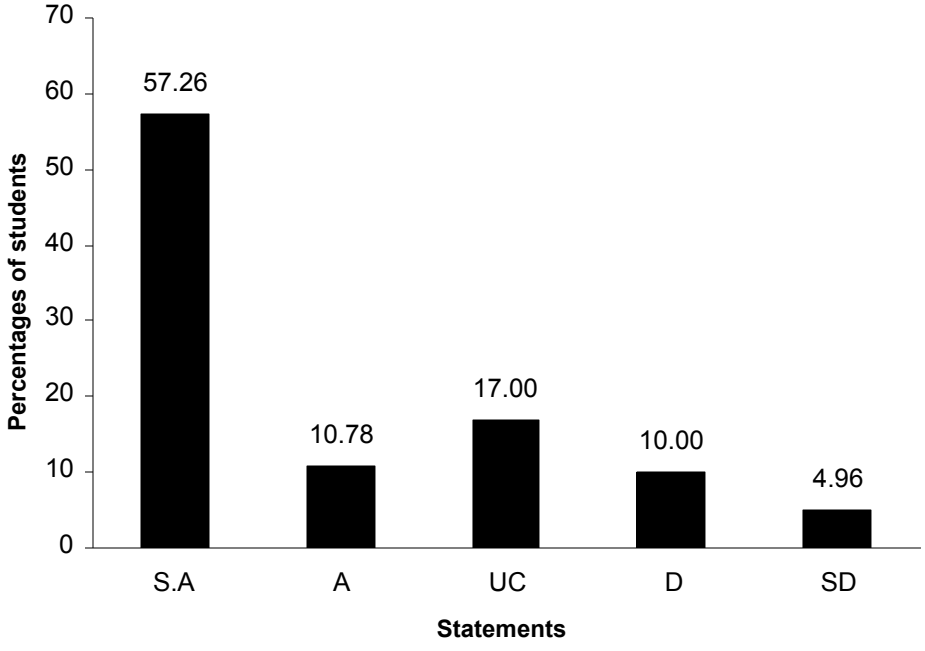
Ms. Javaria Altaf Teacher Evaluation

Data were collected from 69 students. Data shows that the students are strongly agreed (63.96%) that the teacher is fair in examination. More than 57% of the students are strongly agreed that the instructor came with good preparation. Similarly, most of the students agreed that instructor demonstrates knowledge of the subject, instructor has completed the whole course, the Instructor provides additional material apart from the textbook, the Instructor gives citations regarding current situations with reference to Pakistani context, the Instructor communicates the subject matter, the Instructor shows respect towards students and encourages class participation effectively, the Instructor maintains an environment that is conducive to learning, the Instructor arrives on time, the Instructor returns the graded scripts etc. in a reasonable amount of time, the Instructor was available during the specified office hours and for after class consultations, the Subject matter presented in the course has increased your knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated

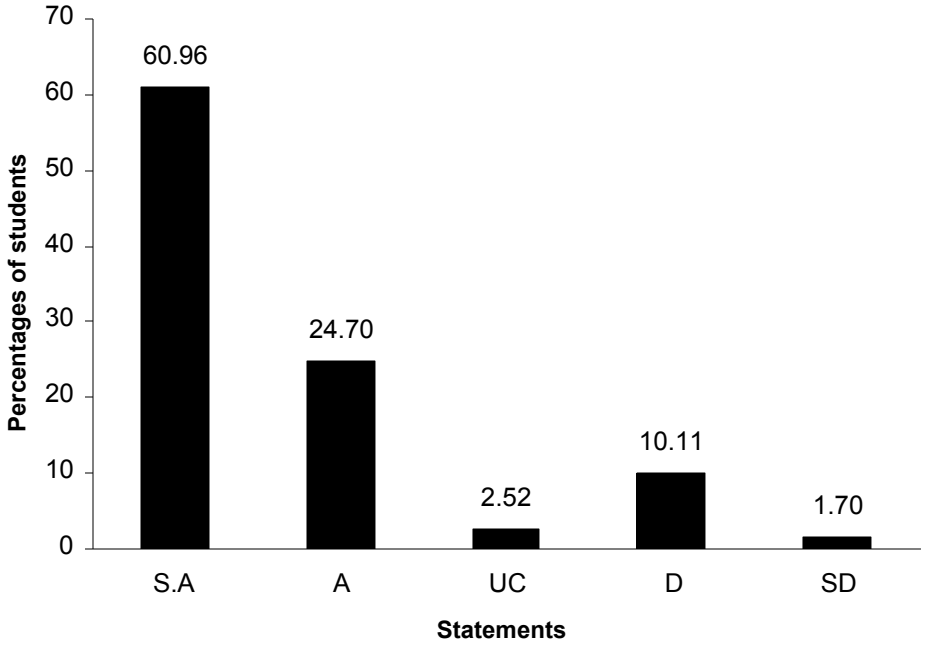
The Instructor communicates the subject matter



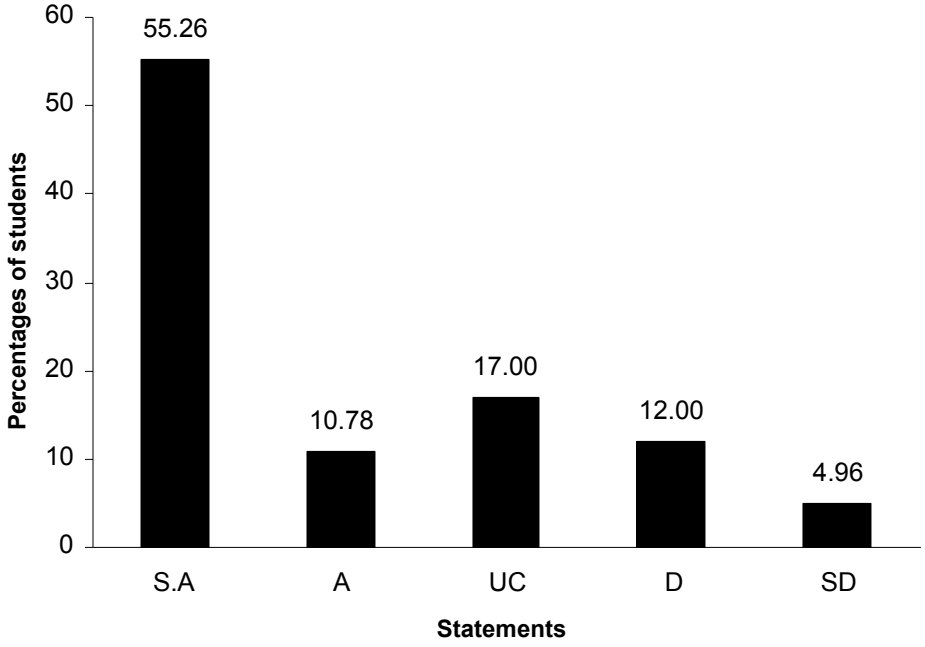
The Instructor shows respect towards students and encourages class participation effectively



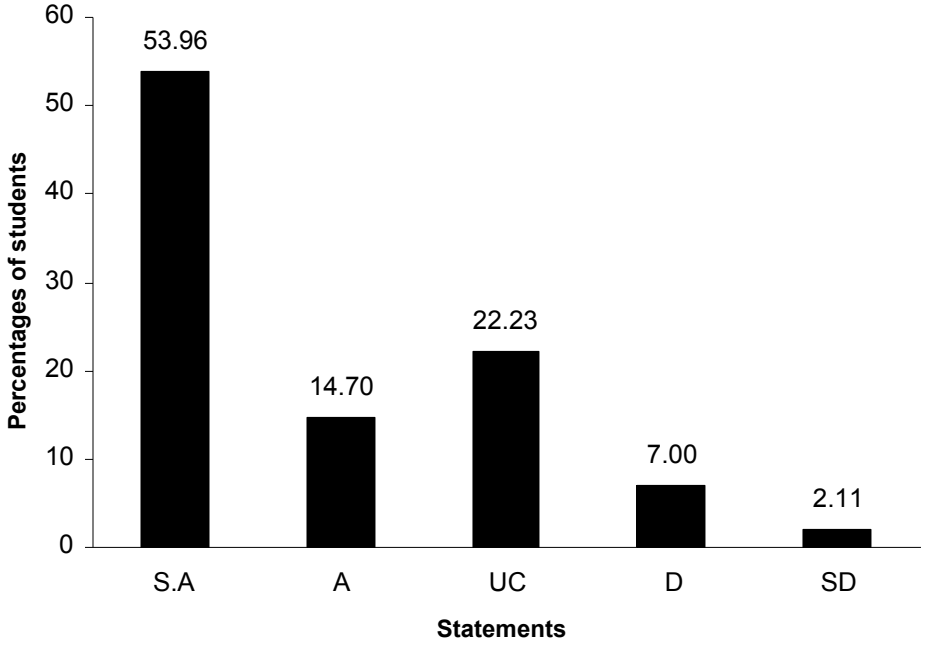
The Instructor maintains an environment that is conducive to learning



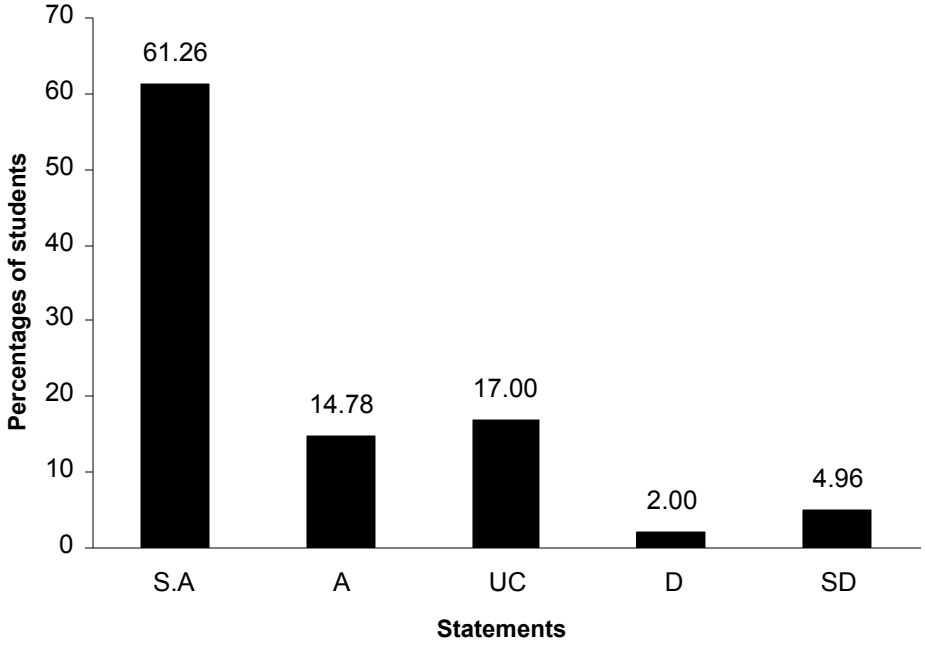
Instructor has completed whole course



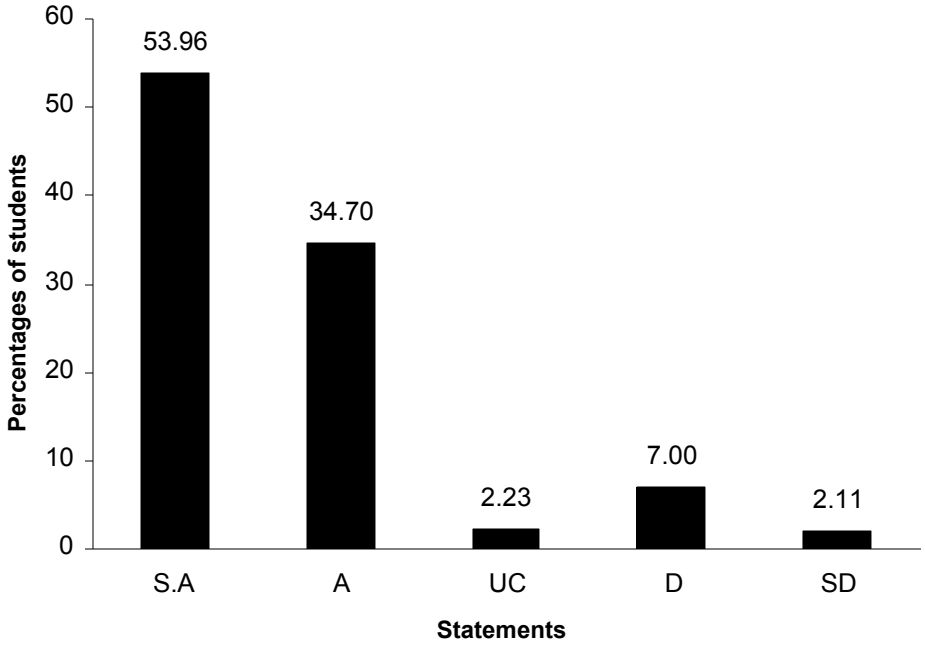
The Instructor provides additional material apart from the textbook



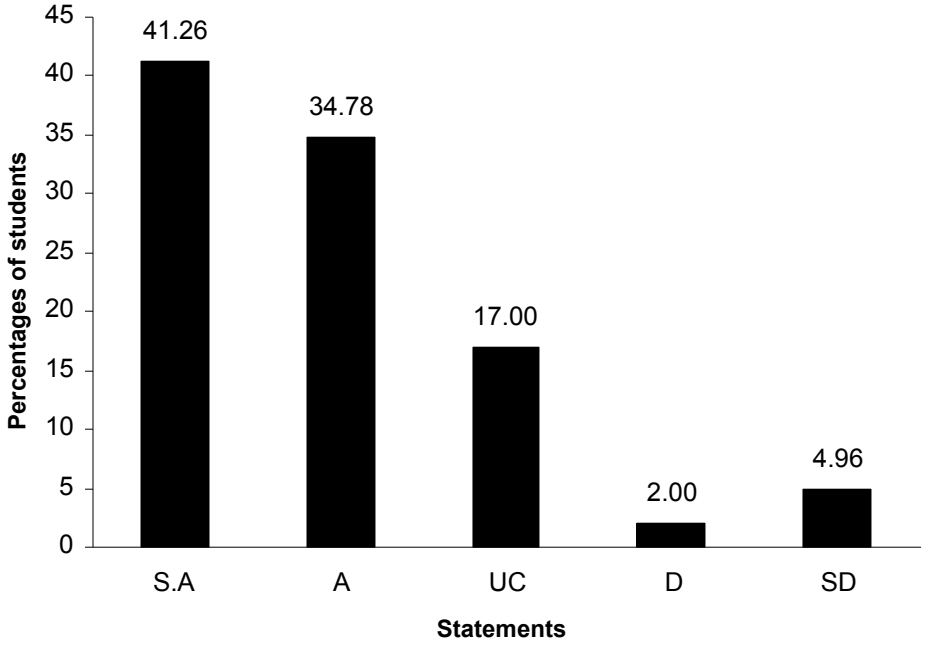
The Instructor gives citations regarding current situations with reference to Pakistani context.



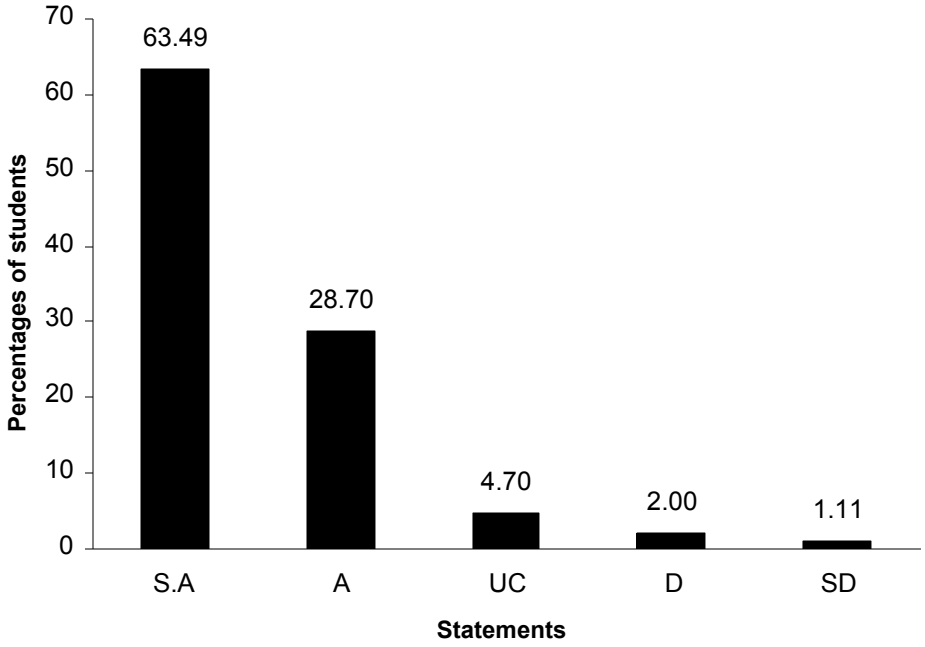
The Instructor communicates the subject matter effectively



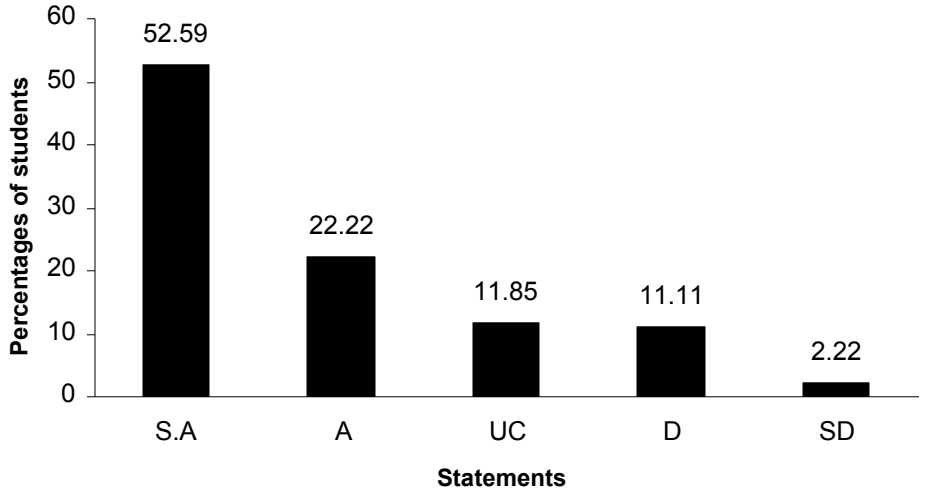
The Instructor shows respect towards students and encourages class participation



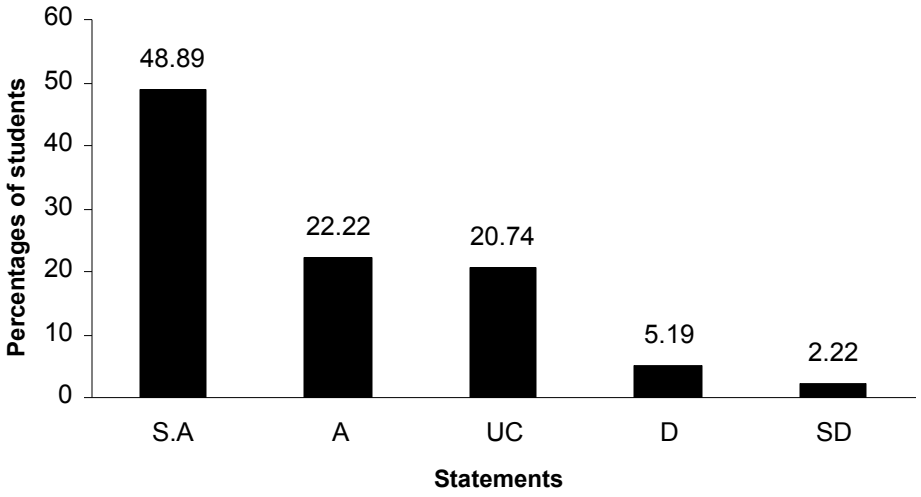
The Instructor arrives on time



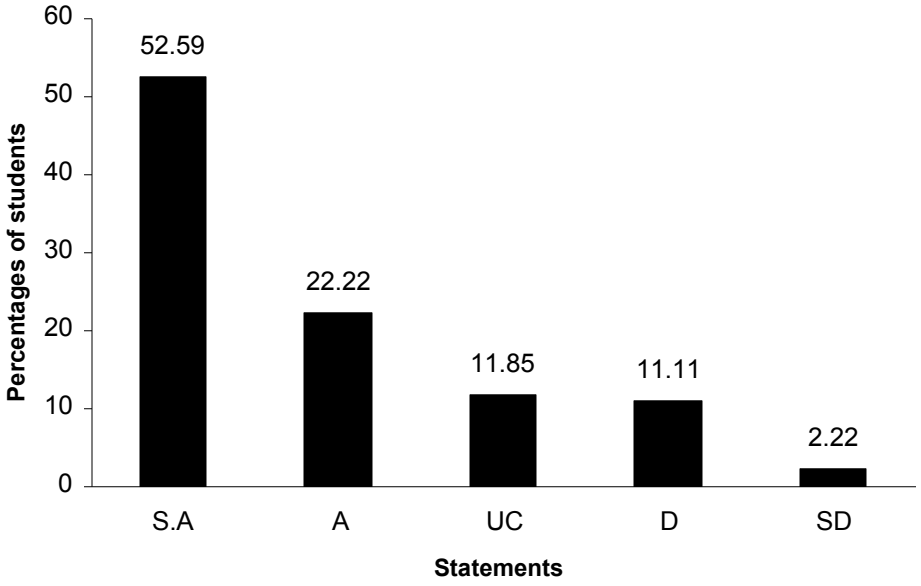
The Instructor is fair in examination



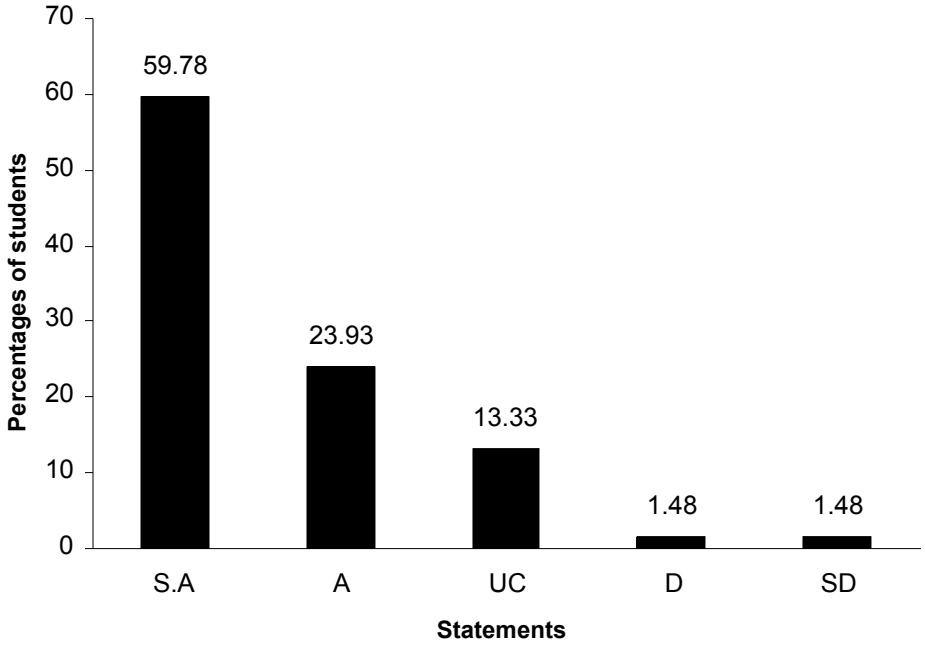
The Instructor returns the graded scripts etc. in a reasonable amount of time



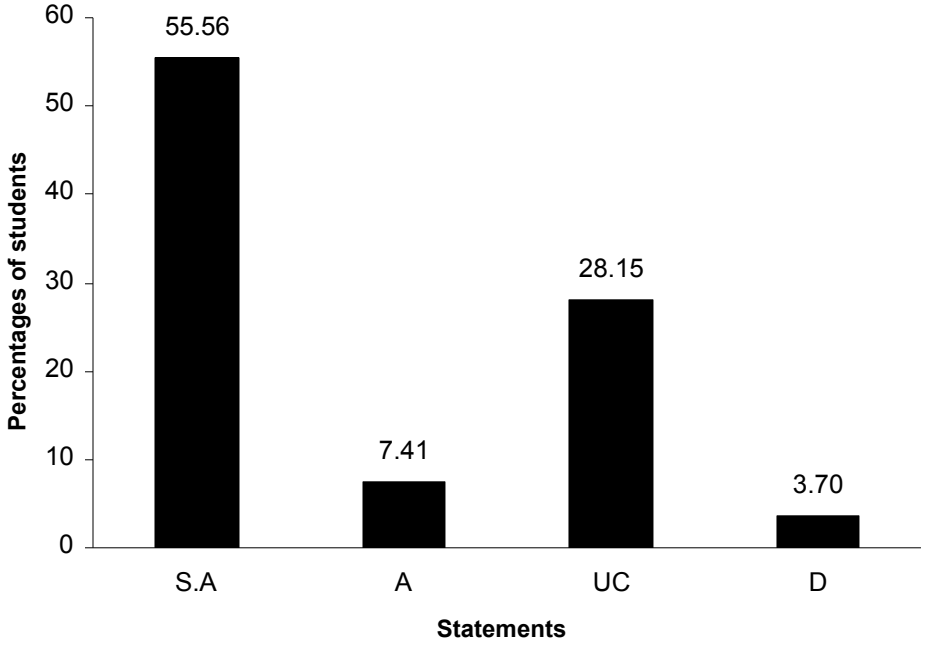
The Instructor was available during the specified office hours and for after class consultations



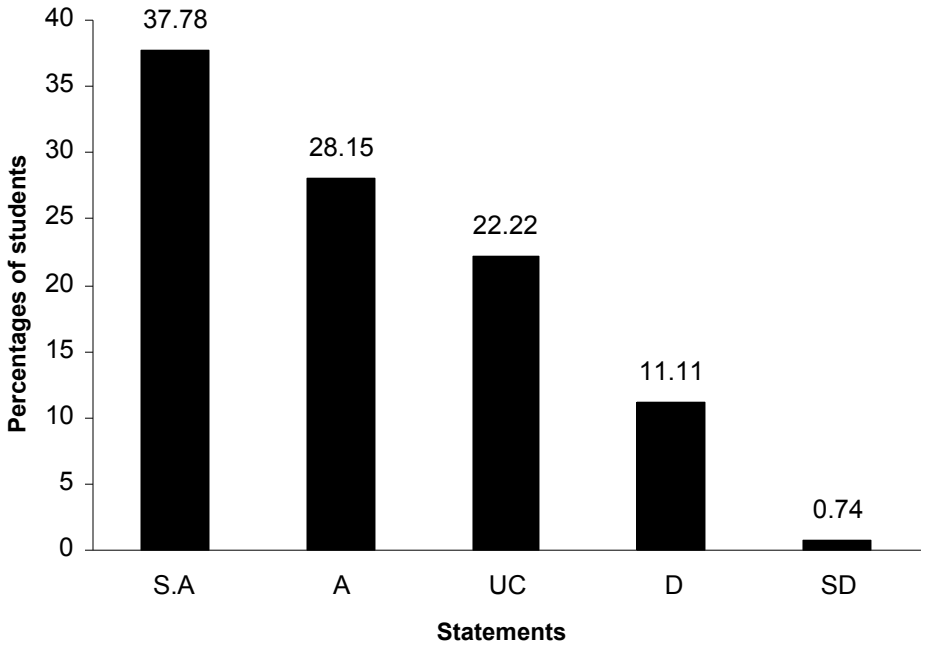
The Subject matter presented in the course has increased your knowledge of the subject



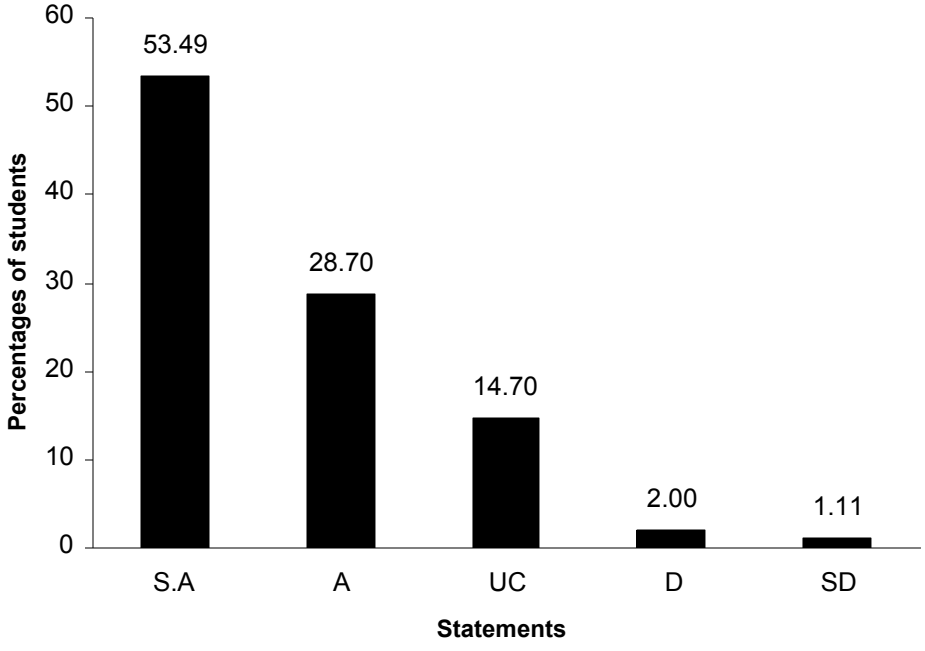
The syllabus clearly states course objectives requirements, procedures and grading criteria



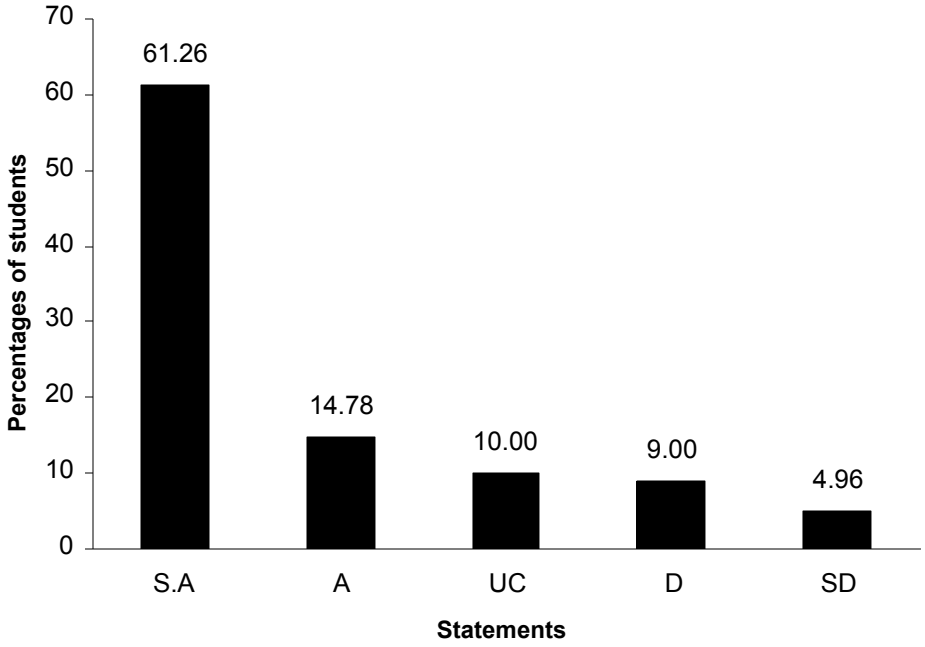
The course integrates theoretical course concepts with real-world applications



The assignments and exams covered the materials presented in the course



The course material is modern and updated

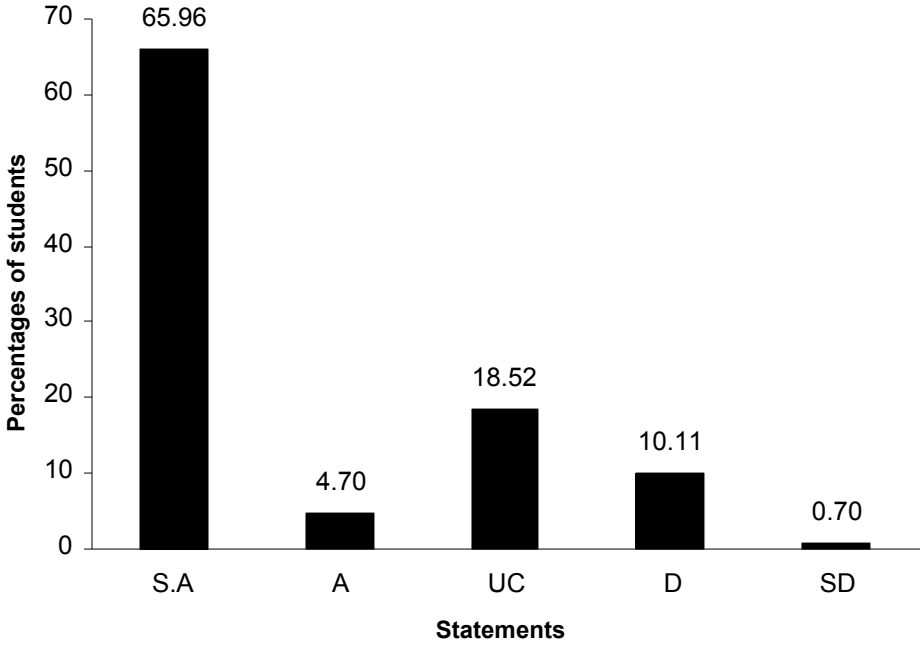

70
60
50
40
30
20
10
0
Percentages of students
61.26
14.78
10.00
9.00
4.96
S.A
A
UC
D
SD
Statements

Ms. Javaria Altaf Course Evaluation

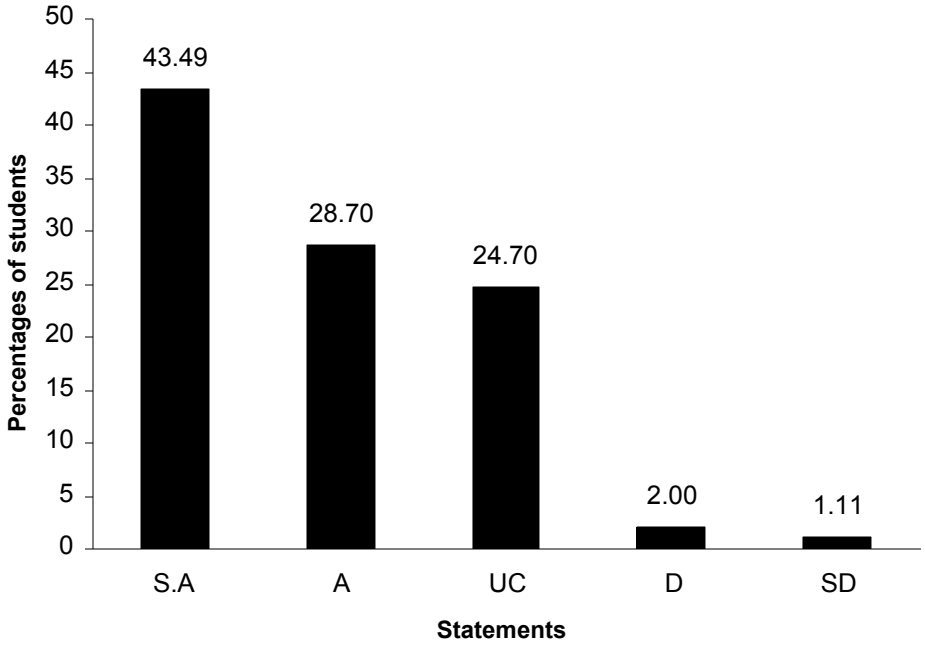
BIOL-728	Concept of Genetics	3(2-2)	Ms. Javaria Altaf

Data were collected from 70 students. Data shows that the students are strongly agreed (65.96%) that the course objectives were clear. More than 43% of the students are strongly agreed that the course workload was manageable, well organized (e.g. timely access to materials, notification of changes, etc.). The students are strongly agreed that the approximate level of student's attendance during the whole course was higher; students participated actively in the course and have made progress in this course. Most of the students think the course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.). Similarly, they are agreed that the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials (Lesson Plans, Course Notes etc.) were relevant and useful, recommended reading books etc. were relevant and appropriate. They described that the provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area. According to most of the students, the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable, the material was well organized and presented, the instructor was responsive to student needs and problems, instructor was regular throughout the course and the material in the tutorials was useful

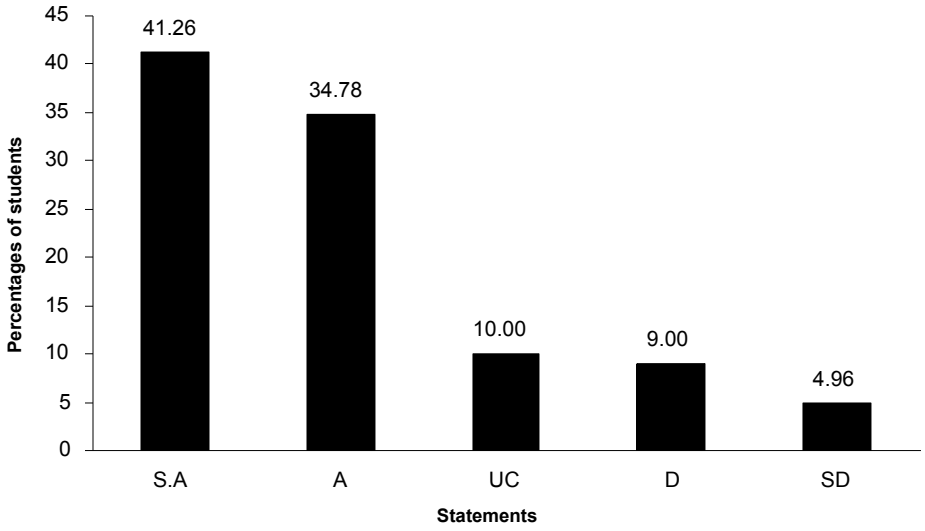
The Course objectives were clear



The Course workload was manageable

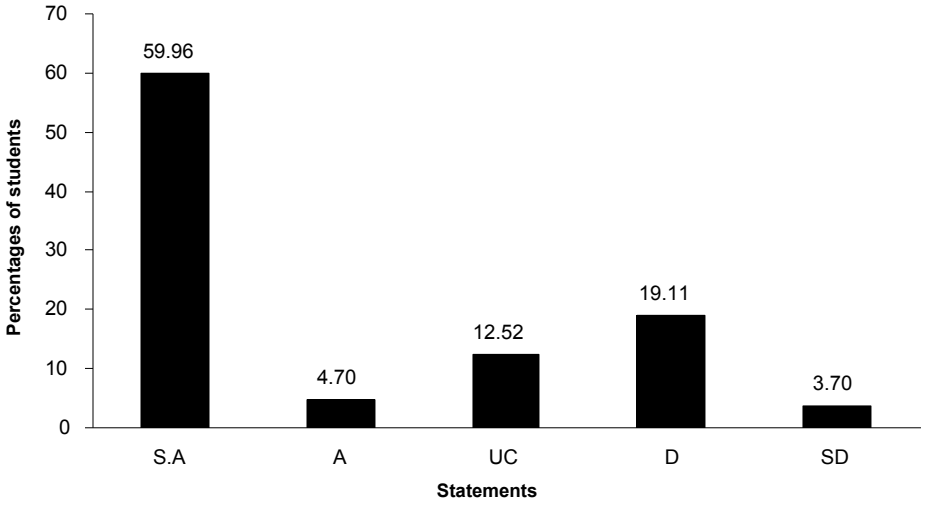


The Course was well organized (e.g. timely access to materials, notification of changes, etc.)

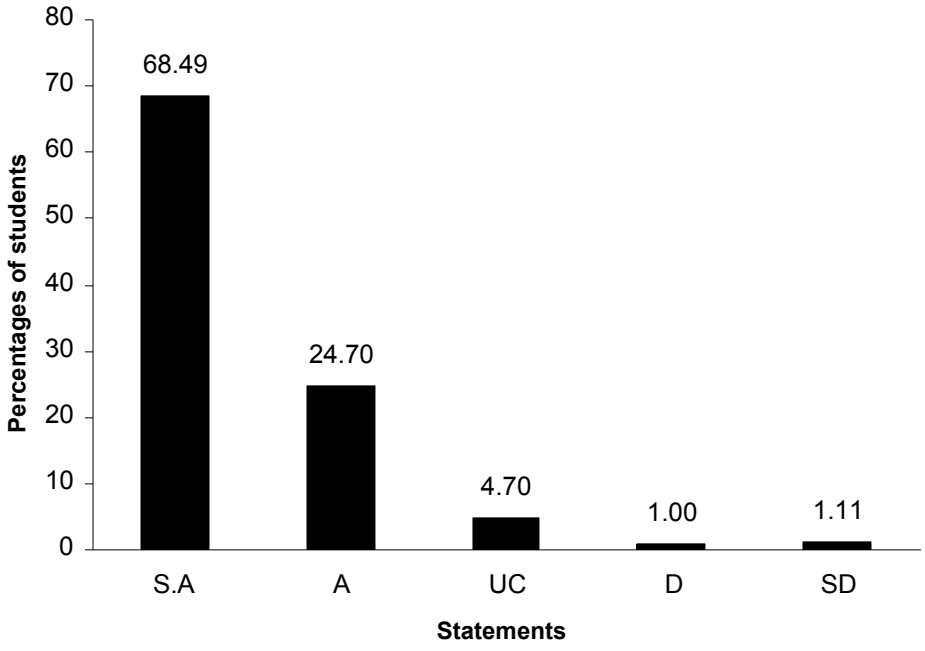


Approximate level of your own attendance during the whole

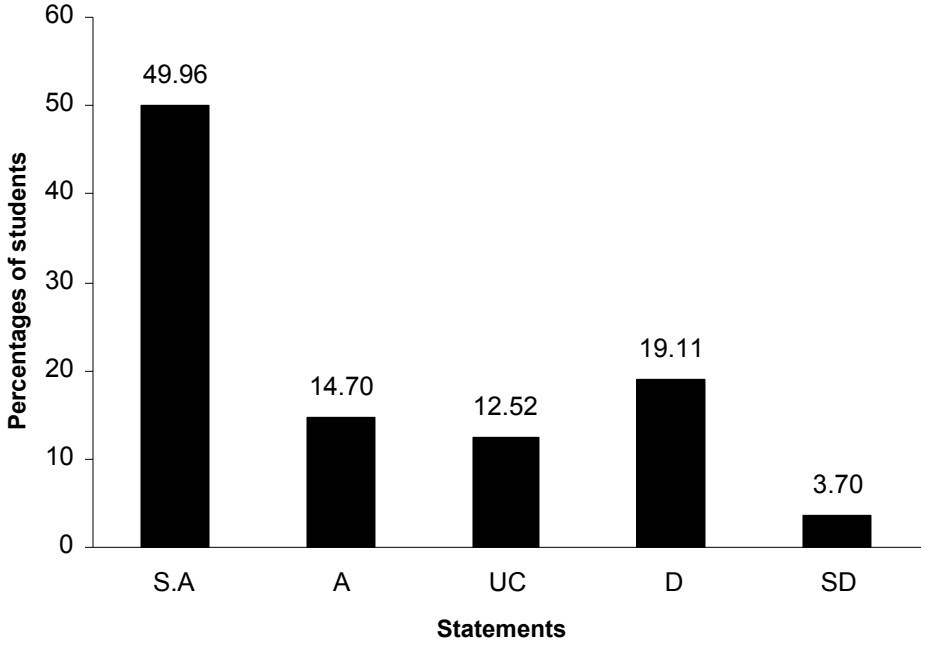
Course


70
60
50
40
30
20
10
0
Percentages of students
59.96
4.70
12.52
19.11
3.70
S.A
A
UC
D
SD
Statements

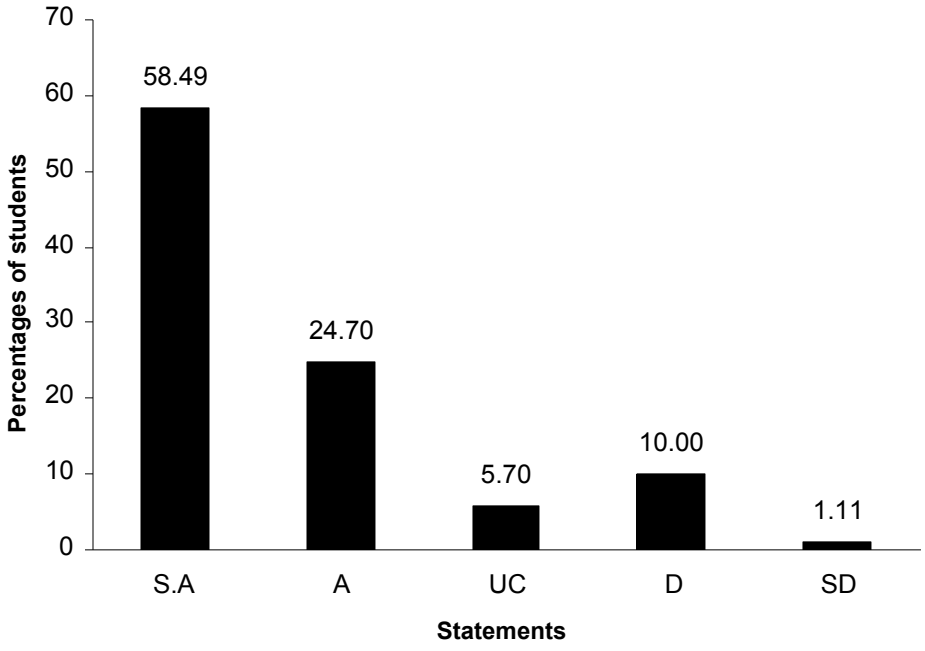
I participated actively in the Course



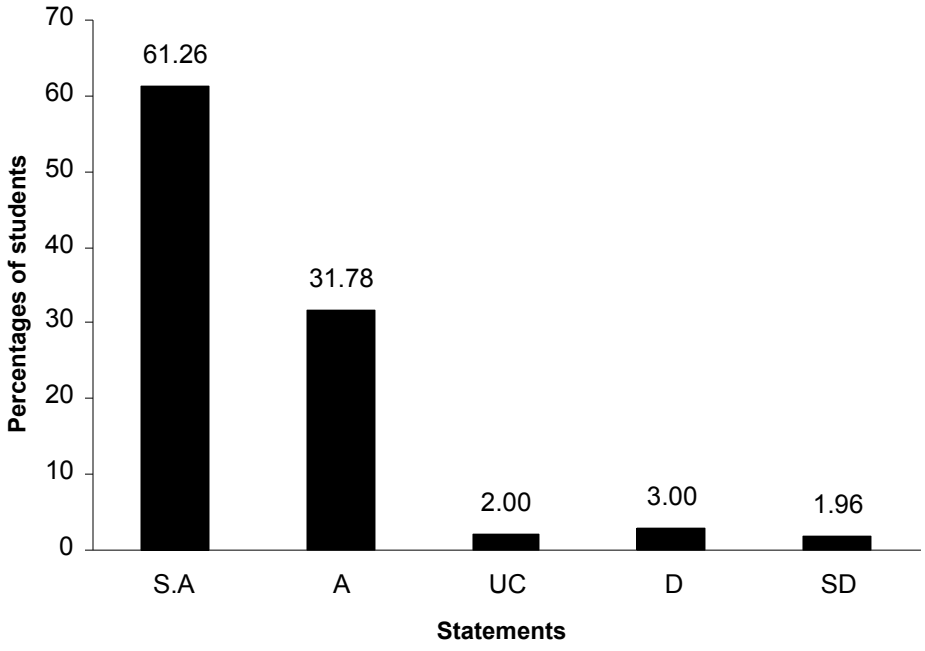
I think I have made progress in this Course



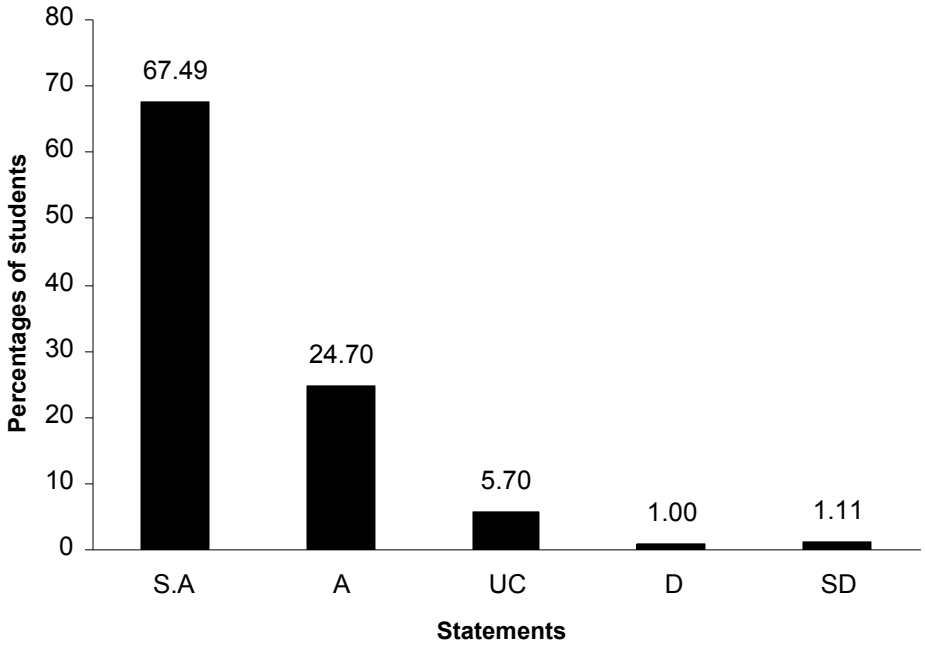
I think the Course was well structured to achieve the learning outcomes



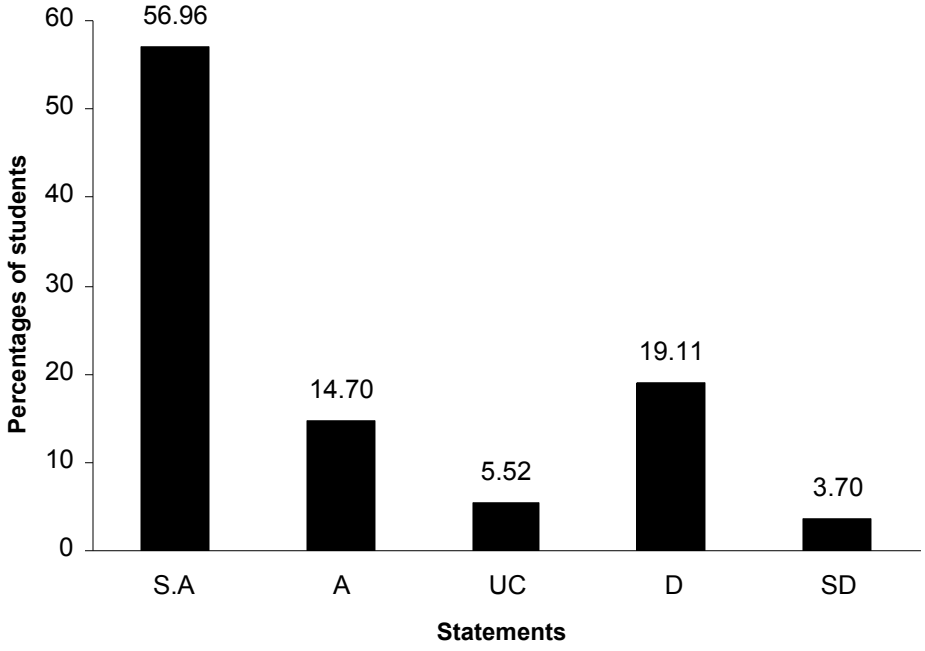
The learning and teaching methods encouraged participation



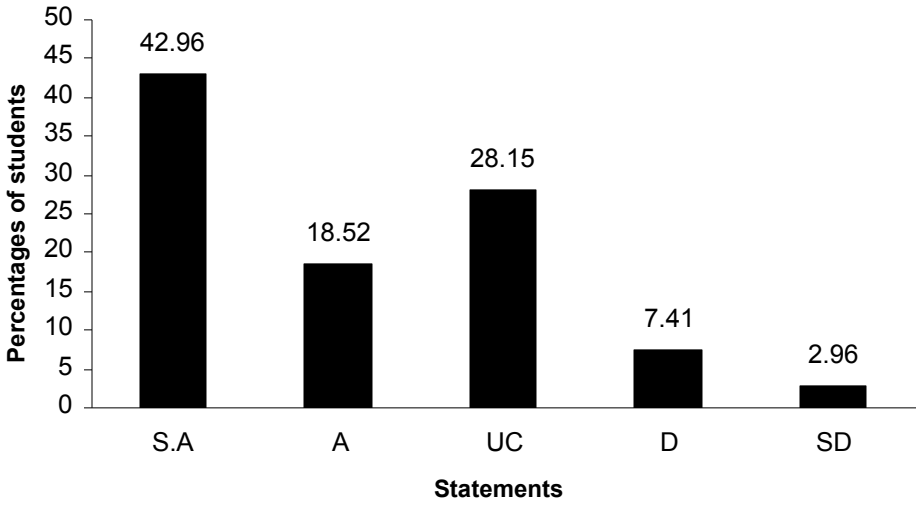
The overall environment in the class was conductive to learning Classrooms were satisfactory



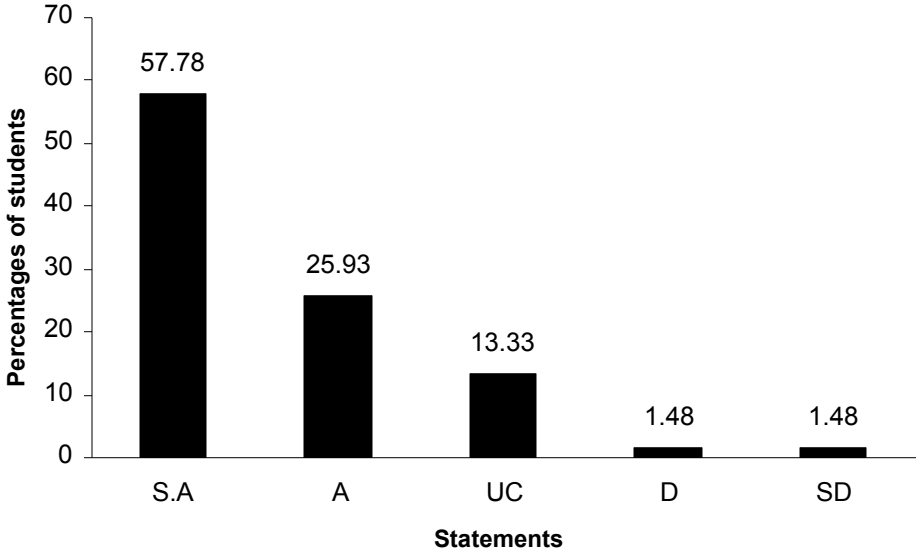
Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful



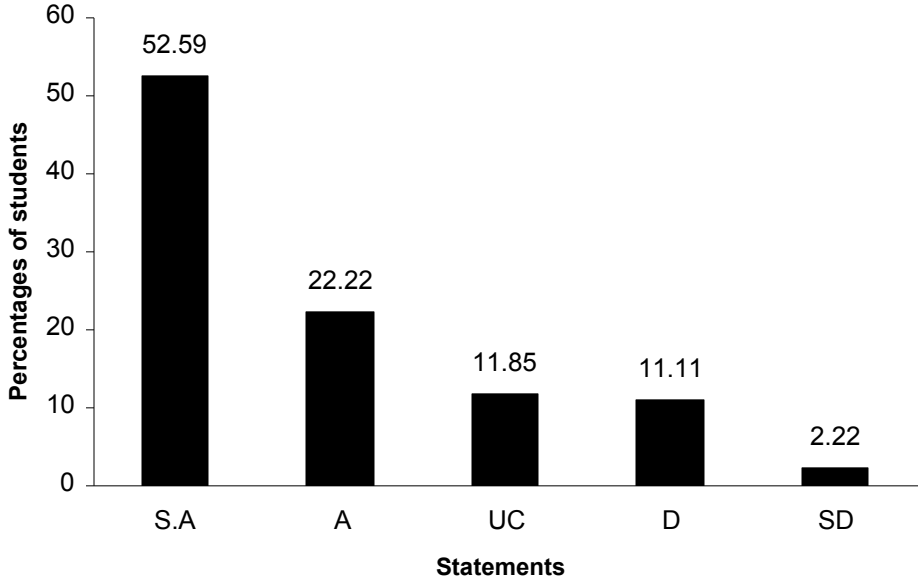
Recommended reading Books etc. were relevant and appropriate



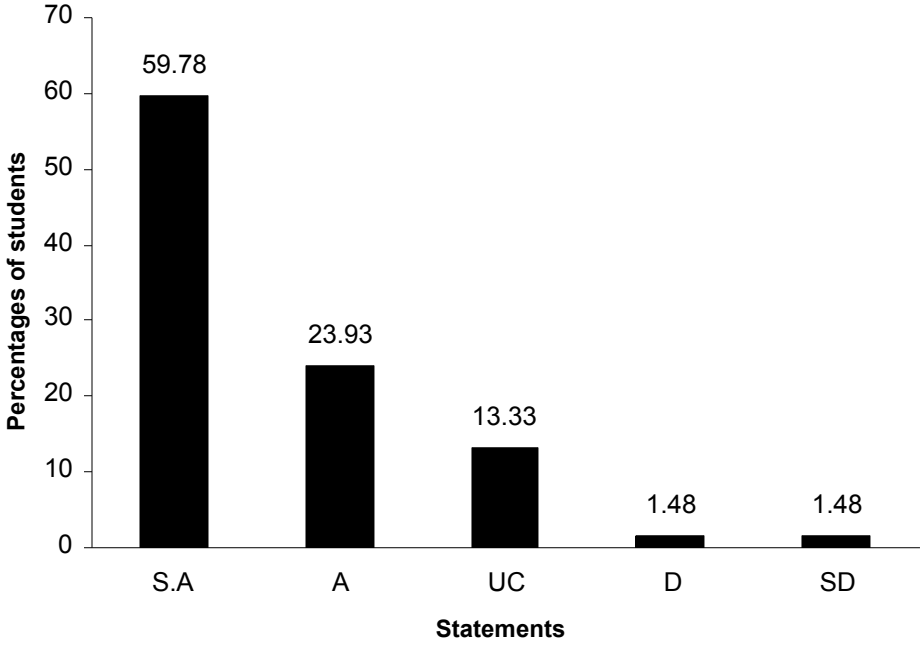
The provision of learning resources in the library was adequate and appropriate



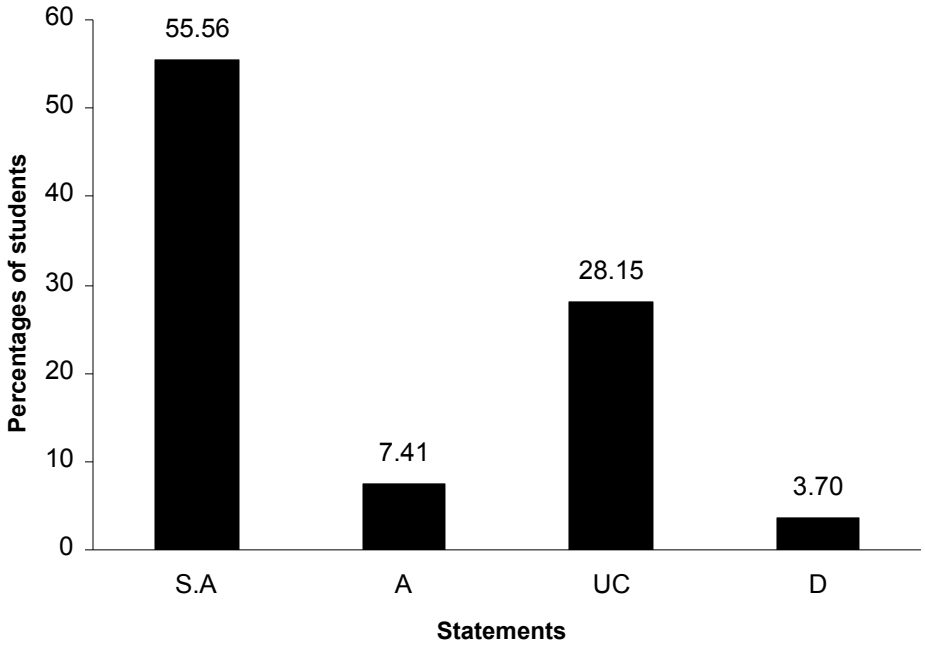
The provision of learning resources on the Web was adequate and appropriate



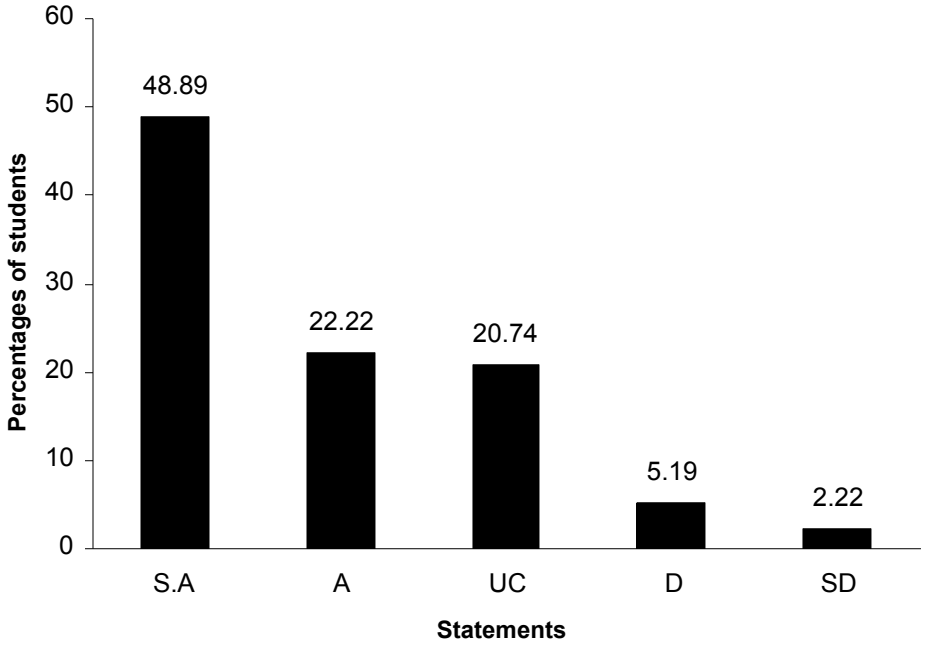
The Course stimulated my interest and thought on the subject area



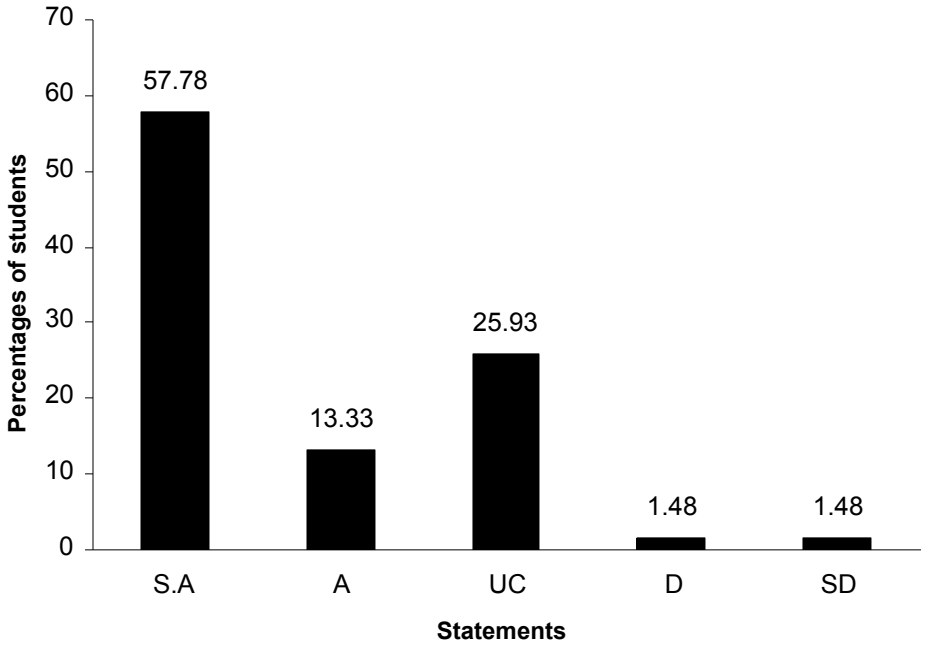
The pace of the Course was appropriate



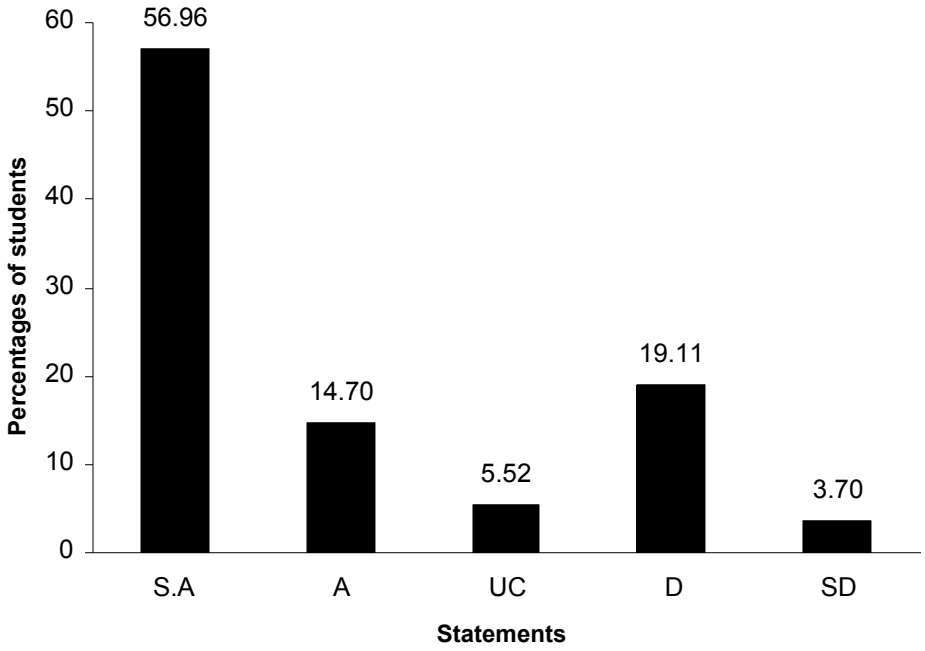
Ideas and concepts were presented clearly



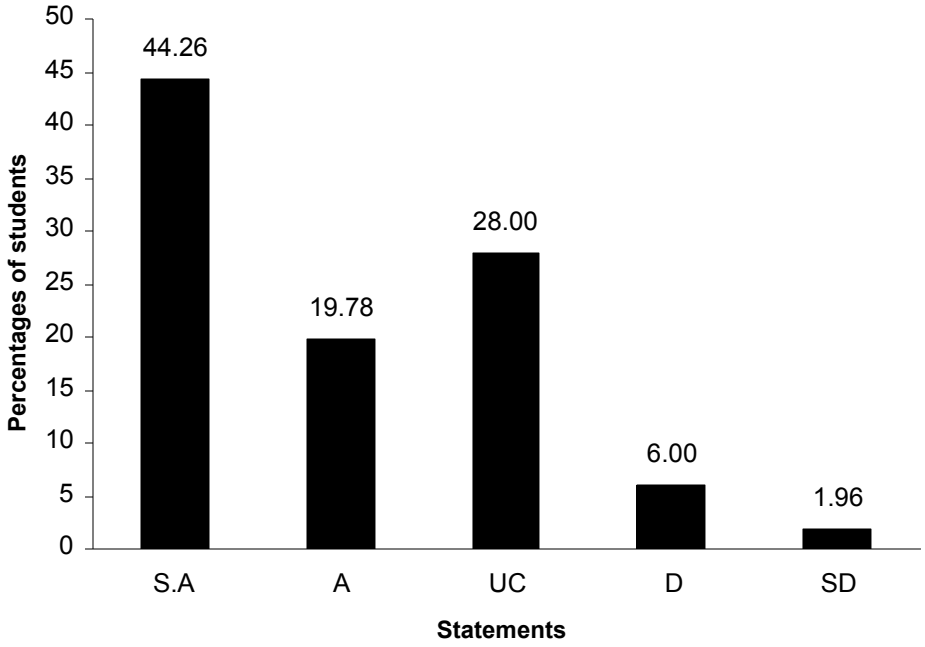
The method of assessment were reasonable



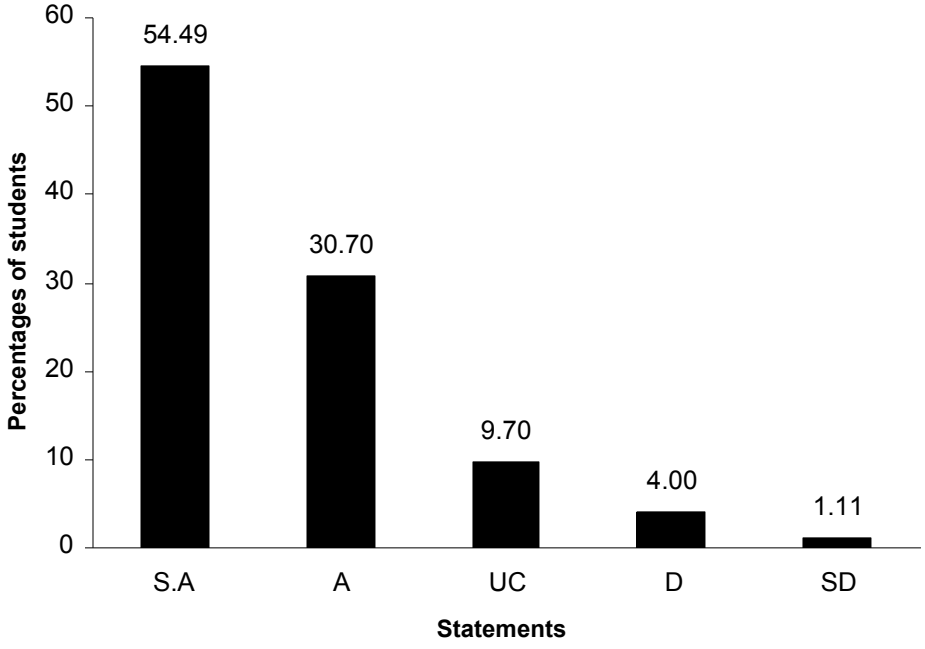
Feedback on assessment was timely



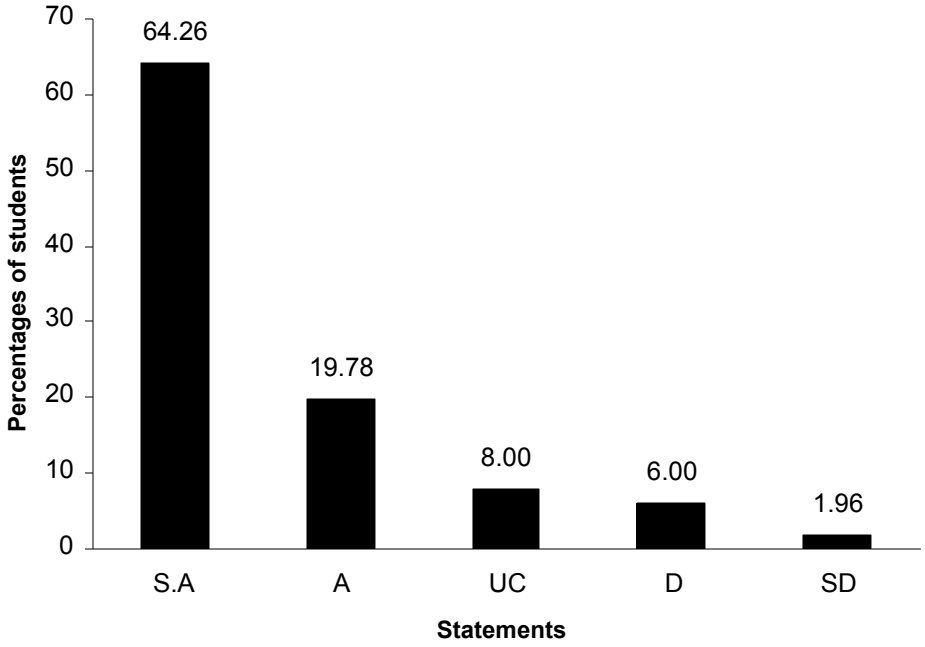
Feedback on assessment was helpful



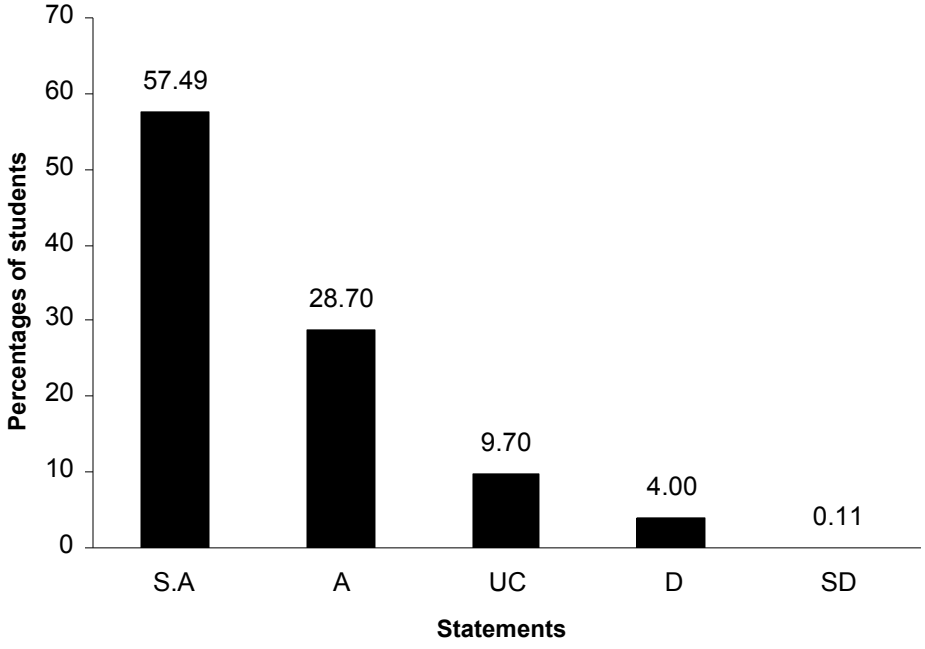
I understood the lectures



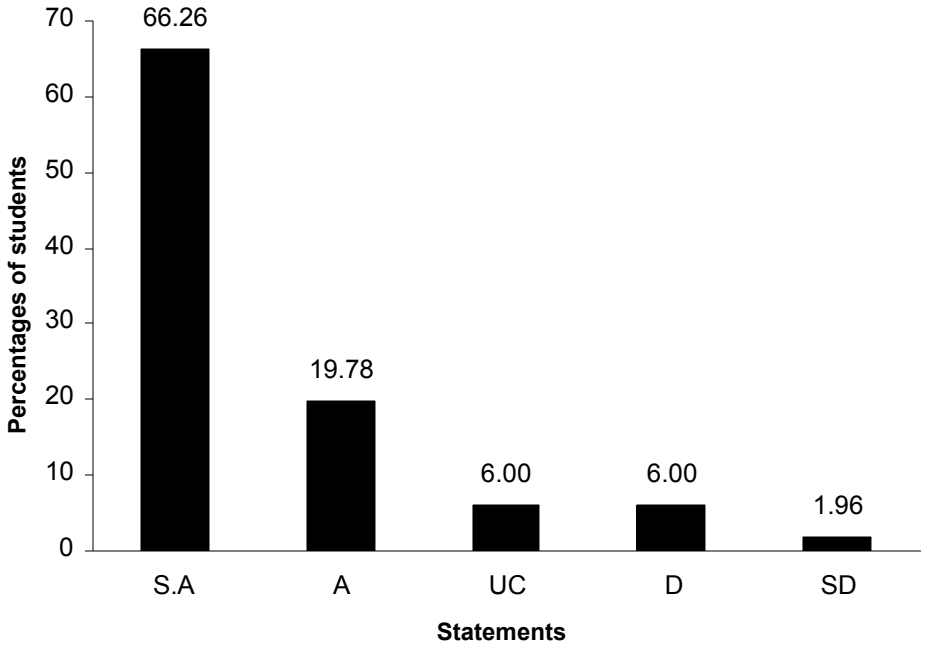
The material was well organized and presented



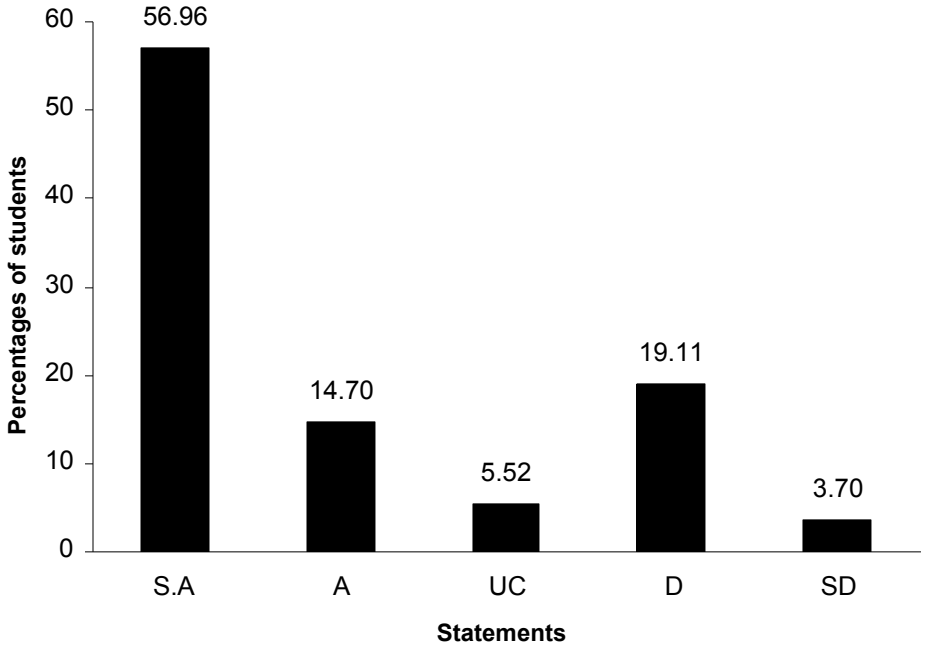
The instructor was responsive to student needs and problems



Had the instructor been regular throughout the course



The material in the tutorials was useful



Research Student Progress Review Form

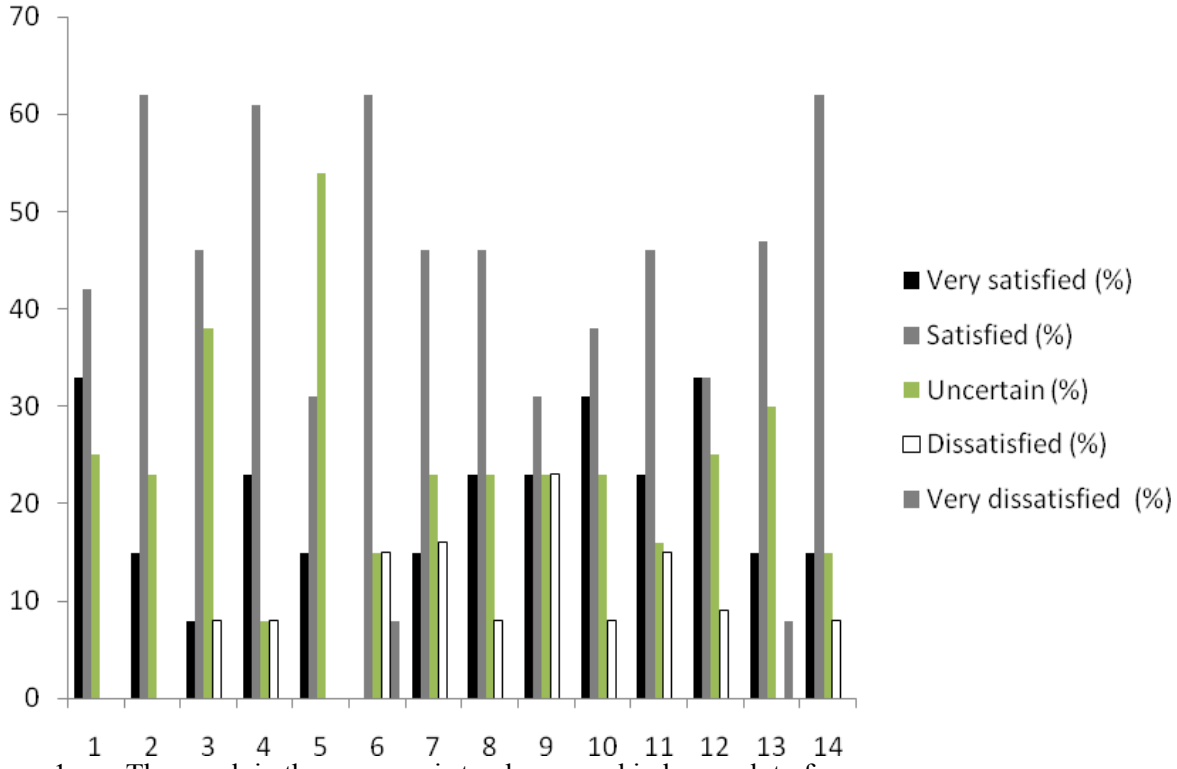
A total of 20 students of M.Phil. and Ph.D. were surveyed. Most of the students of M.Phil. and Ph.D. are interested to take lab trainings and they are also interested to operate modern equipments. The students have problems regarding to the administrative and financial approval of the budget/ and as well as maintenance. They also pointed out the problems regarding to the availability of computers and internet which is very poor.

Skills and Capabilities Reflected in Performance as Zoologist

- Students will be able to work in the field of Zoology with confidence.
- To develop abilities of effective writing, oral presentations and demonstration.
- To use modern techniques, tools in research studies.

GRADUATING STUDENTS SURVEY

A total of 135 students have been surveyed and 40% students are very satisfied with the workload in the program. The program is effective in enhancing team working abilities and 80% students are agreed with it. Similarly, most of the students are satisfied with program administration, development of analytical and problem solving skills. According to graduating students the program is effective in developing independent thinking, written communication skills and planning abilities. The objectives of the program have fully achieved according to most of the students. The students are highly satisfied that the contents of curriculum are advanced and meet program objectives, faculty was able to meet the program objectives and the environment was conducive for learning. Most of the students are satisfied with the infrastructure of the department.

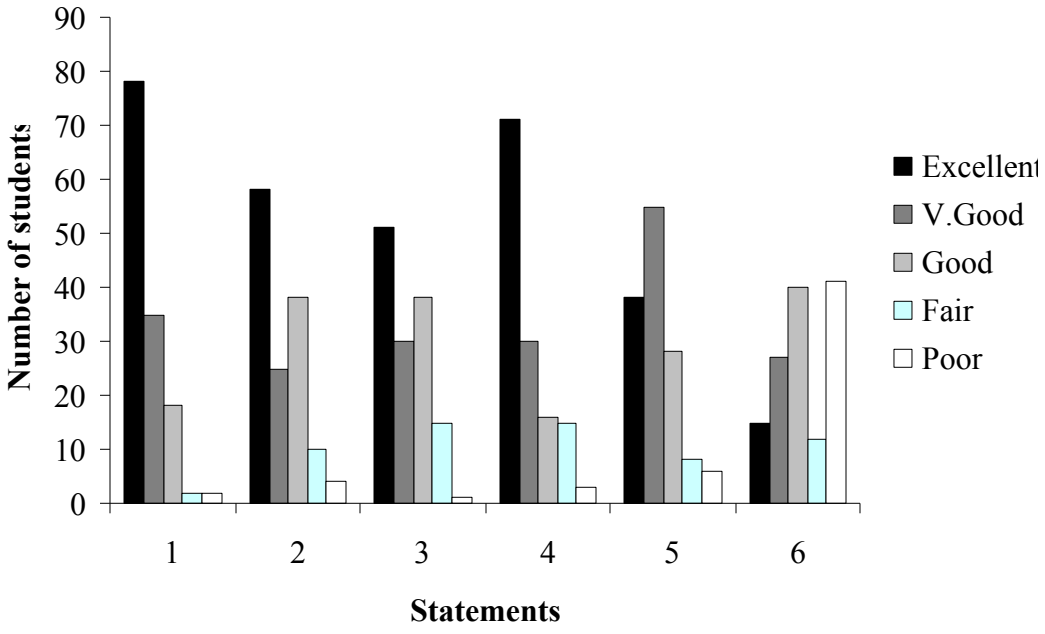


1 The work in the program is too heavy and induces a lot of pressure
2 The program is effective in enhancing team working abilities
3 The program administration is effective in supporting learning
4 The program is effective in developing analytical and problem solving skills
5 The program is effective in developing independent thinking
6 The program is effective in developing written communication skills
7 The program is effective in developing planning abilities
8 The objectives of the program have fully achieved
9 Whether the contents of curriculum are advanced and meet program objectives
10 Faculty was able to meet the program objectives
11 The environment was conducive for learning
12 Whether the infrastructure of the department was good
13 Whether the program comprised of co-curricular and extra-curricular activities
14 Whether scholarships were available to students in case of hardship

Alumni Survey

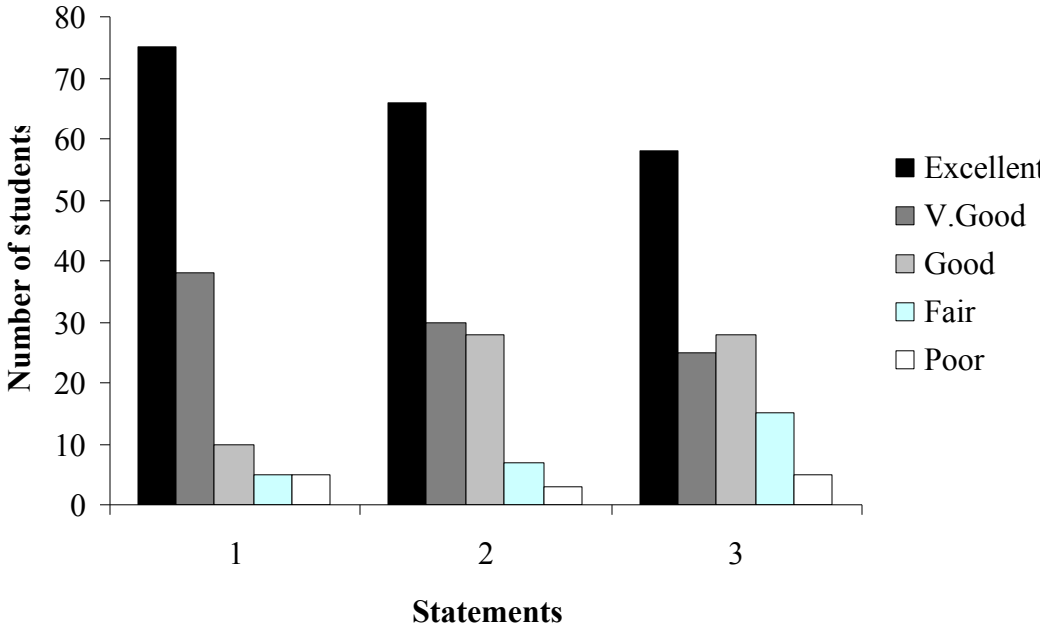
The purpose of this survey is to obtain alumni input on the quality of education they received and the level of preparation they had at University. The purpose of this survey is to assess the quality of the academic program. A total of 135 students have been surveyed.

According to data more than 70 students agreed that the knowledge of science provided by the department is excellent. According to more than 50 students, department trained them excellently to formulate and solve problems and collect and analyze data. IT knowledge is poor according to more than 40 students. Data shows data the 60 students have agreed that they got excellent training of oral communication, report writing and presentation skills. More than 55 students are agreed that they have excellent interpersonal skills such as team work, working in challenging conditions and independent thinking. Data shows that 70 students have learnt excellent management of resource and time. 60 students agreed that they learnt excellent power of judgment. According to 70 students, department has excellent infrastructure and repute.



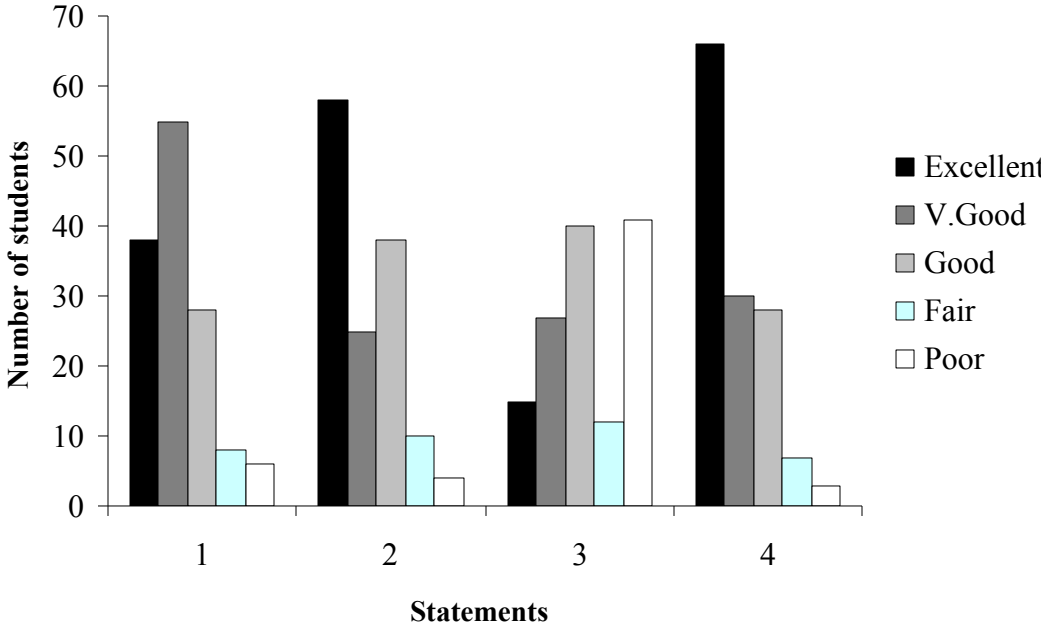
Knowledge

1 Science
2 Problem formulation and solving skills
3 Collecting and analyzing appropriate data
4 Ability to link theory to practice.
5 Ability to design a system component or process
6 IT knowledge



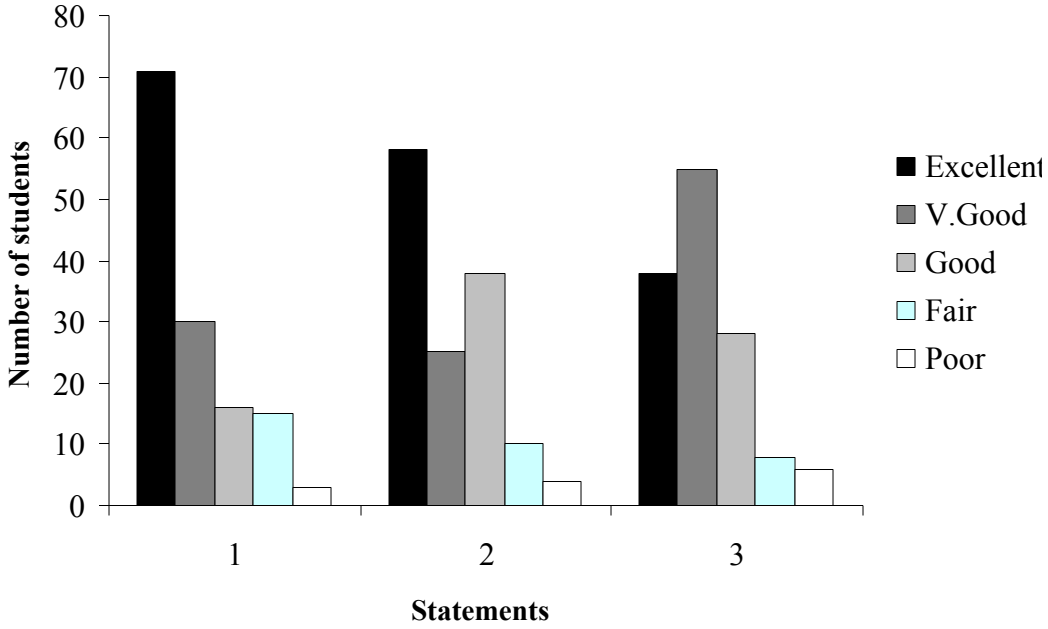
Communications Skills

1 Oral communication
2 Report writing
3 Presentation skills



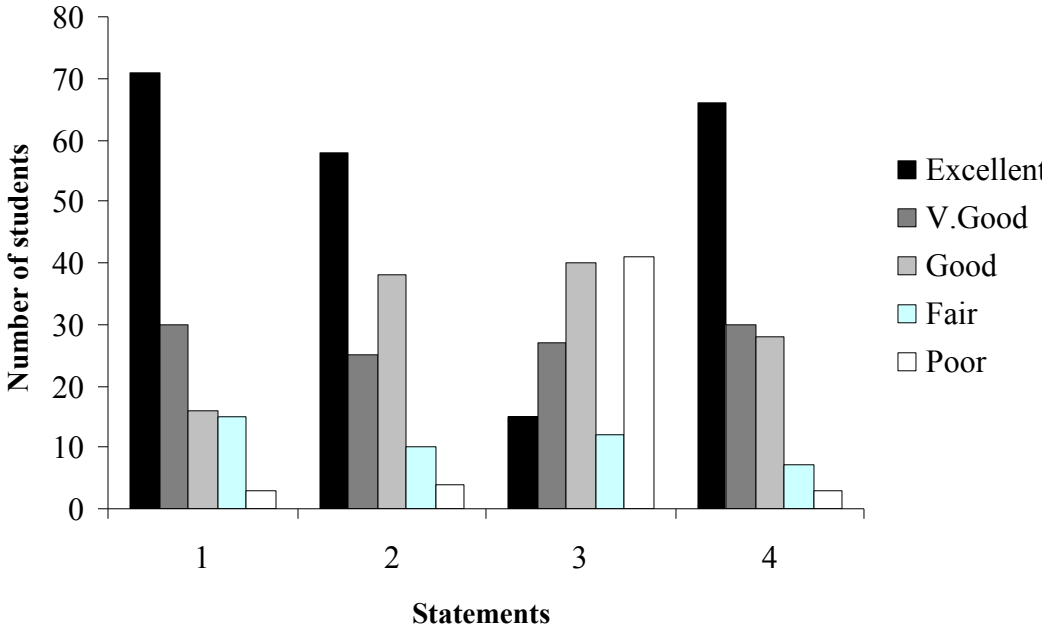
Interpersonal Skills

1. Ability to work in teams.
2. Ability to work in arduous /Challenging situation
3. Independent thinking
4. Appreciation of ethical Values



Management /leadership Skills

1 Resource and Time management skills
2 Judgment
3 Discipline



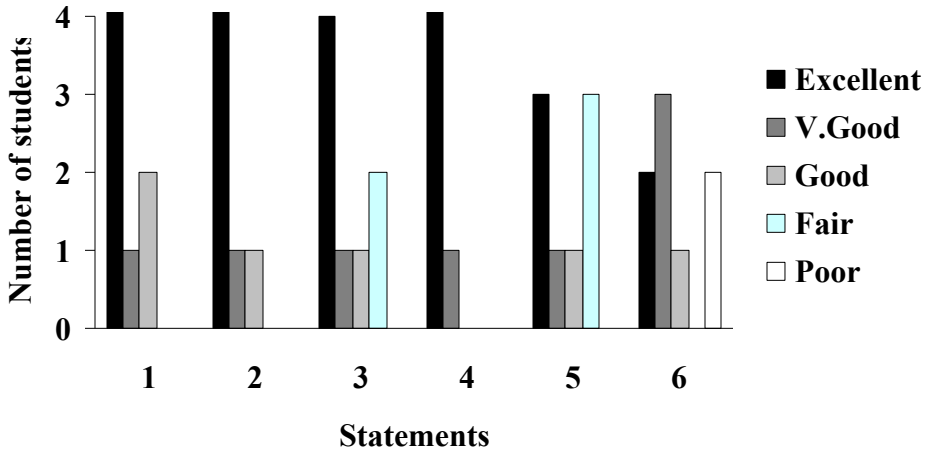
Department Status

1 Infrastructure
2 Faculty
3 Repute at National level
4 Repute at international level

Employer Survey

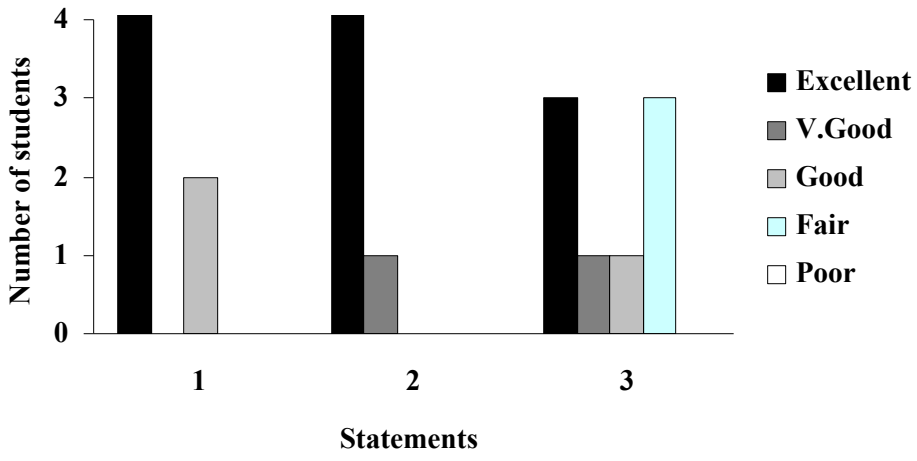
The purpose of this survey is to obtain employers input on the quality of education Department of Zoology is providing and to assess the quality of the academic program. The survey is with regard to University of graduates employed at different organization. A total of 8 employers gave the data. According to 5 employers, the students have excellent knowledge of science, 6 employers agreed that candidates have excellent power of problem formulation and solving skills, and have great ability of oral communication and are reliable

and ethically sound. Employers showed a little concern about computer skills of the candidates.



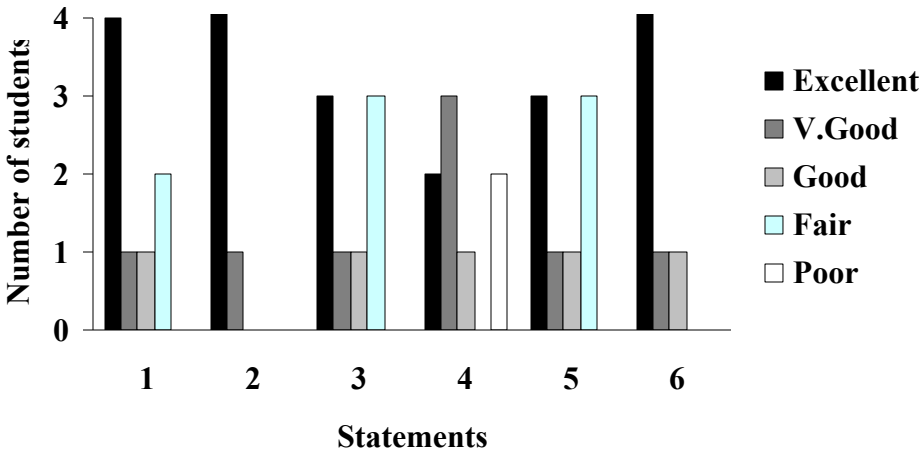
Knowledge

1 Science
2 Problem formulation and solving skills
3 Collecting and analyzing appropriate data
4 Ability to link theory to practice.
5 Ability to design a system component or process
6 IT knowledge



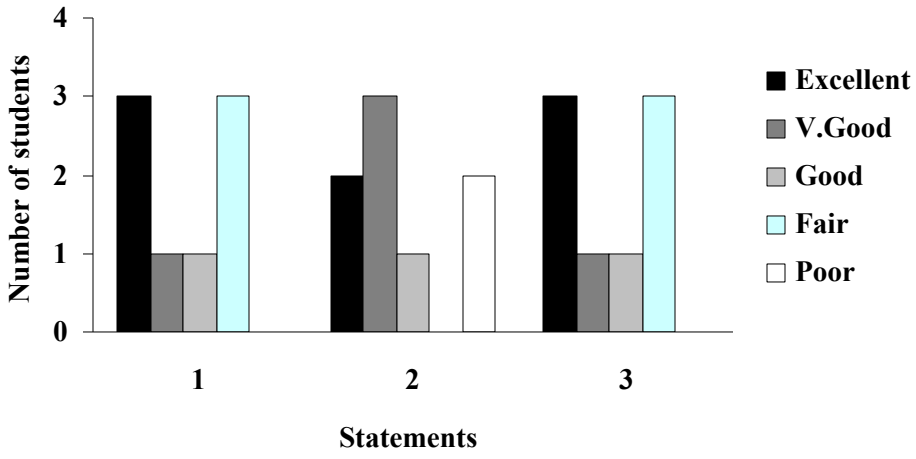
Communications Skills

1	Oral communication
2	Report writing
3	Presentation skills



Interpersonal Skills

1. Ability to work in teams.
2. Ability to work in arduous /Challenging situation
3. Independent thinking
4. Appreciation of ethical Values



Work skills

1. Time management skills
2. Judgment
3. Discipline

Faculty Course Review Report

According to evaluation the faculty is satisfied with curriculum. Questionnaire for evaluation has been filled and analyzed. There was internal evaluation with mid and final term examinations for all courses offered by department. Some of the teachers are keen to revise the courses as they are either outdated or lengthy.

Faculty Course Review Report

Course Code	Title	Credit Value	Assessment Methods/ Exams	No. of Students	comments on curriculum	Any changes for future in course	Semester	%Grade						Course Instructor
								A	B	C	D	E	F	
BIOL-701	Cellular Biology	3(2-2)	Mid term And Final	70	Informative but lengthy	Should be divided	Fall							Ms. Mubashra Munir
BIOL-709	Fundamental of Microbiology and Immunology	3(2-2)	Mid term And Final	65	Good	No	Fall	33	24	32	10	0	1	Dr. Mazhar Qayyum
BIOL-728	Concept of Genetics	3(2-2)	Mid term And Final	66	Well prepared	No	Fall	21	34	40	3	1	1	Ms. Javaria Altaf
BIOL-706	Biosystematics	4(3-2)	Mid term And Final	70	Excellent	No	Fall	50	10	13	6	18	3	Ms. Mubashara / Ms. Javaria Altaf
BIOL-708	Economic Biology	4(3-2)	Mid term And Final	65	Good	Should be updated	Fall	60	10	22	6	2	0	Dr. Arshad/ Ms. Javaria Altaf
BIOL-711	Research Planning and Report Writing	3(1-4)	Mid term And Final/Report	70	Lengthy	Should be revised	Fall	42	12	45	1	0	0	Mr. M.Irfan
BIOL-720	Seminar-I	1(1-0)	Seminar was presented	65	Very Good	No	Fall	13	55	12	12	8	0	Mr. M. Irfan

ZOOL-701	Cell Biology	3(2-2)	Mid term And Final	66	Good prepared	No	Fall	21	34	40	3	2	0	Dr. Mazhar Qayyum
ZOOL-703	Principles of Genetics	3(2-2)	Mid term And Final	70	Excellent	No	Fall	58	12	22	6	2	0	Ms. Javaria Altaf
ZOOL-709	Principles of Animal Systemics	2(1-2)	Mid term And Final	66	Good	Revised	Fall	60	10	22	6	2	0	Mrs. Shamim Akhtar
ZOOL-706	Developmental Biology	3(2-2)	Mid term And Final	65	Lengthy	Should be revised	Fall	43	12	40	5	0	0	Dr. M. Sajid Nadeem
ZOOL-711	Research Planning and Report Writing	3(1-4)	Mid term And Final	66	Well prepared	No	Fall	13	55	12	12	4	4	Dr. Shamim Akhtar
BIOL-703	Plant Physiology	3(2-2)	Mid term And Final	70	Very good	No	Fall	21	34	40	3	1	1	Dr. Abdul Waheed
BIOL-704	Environmental Biology	3(2-2)	Mid term And Final	67	Up to date	No	Fall	33	24	32	10	1	0	Dr. Zubaida Yousaf
BIOL-707	Biodiversity	4(3-2)	Mid term And Final	66	Better	Need to be revised	Spring	21	34	40	3	2	0	Dr. M. Sajid Nadeem/ Dr. Rehmat Ullah
BIOL-705	Evolutionary Biology	2(2-0)	Mid term And Final	66	Good	No	Spring	50	10	13	6	21	0	Dr. Afsar Mian
BIOL-702	Physiological Systems of Animal	3(2-2)	Mid term And Final	65	Lengthy	Should be revised	Spring	60	10	22	6	2	0	Mr. M. Irfan
BIOL-710	Mycology and Plant Pathology	3(2-2)	Mid term And Final	70	Well prepared	No	Spring	42	12	45	1	0	0	Ms. Mubashra Muneer
BIOL-712	Principles of Biotechnology	3(2-2)	Mid term And Final	65	Very good	No	Spring	13	55	12	12	8	0	Dr. Azra Khanum

ZOOL-702	Animal Diversity and Zoogeography	3(2-2)	Mid term And Final		Up to date	No	Spring	13	55	12	12	8	0	Dr. M. Sajid Nadeem
ZOOL-704	Comparative Animal Physiology	3(2-2)	Mid term And Final	66	Good	No	Spring	21	34	40	3	2	0	Mr. M. Irfan
ZOOL-708	Aquaculture and Fisheries	3(2-2)	Mid term And Final	65	Lengthy	Should be revised	Spring	58	12	22	6	2	0	Dr. Shamim Akhter
ZOOL-705	Animal Behavior	2(2-0)	Mid term And Final	66	Well prepared	No	Spring	60	10	22	6	0	2	Dr. Syed Uzair Ahmed
ZOOL-707	Comparative Endocrinology	3(2-2)	Mid term And Final	70	Very good	No	Spring	43	12	40	5	0	0	Dr. Shamim Akhter
ZOOL-710	Parasitology	2(2-0)	Mid term And Final	70	Very good	No	Spring	13	55	12	12	8	0	Dr. Farhana Riaz
ZOOL-720	Seminar	1(1-0)	Seminar was presented	65	Very Good	Need to be revised	Spring	21	34	40	3	2	0	Dr. Farhana Riaz

Standard 1-3: Strength of the Department

The main strength of the department is the availability of qualified teachers (Mainly HEC National professors), with full acquaintance of their respective subjects, having vast knowledge of the subject. Majority of the faculty members have a PhD degree and are expert in their fields, they have implemented national and international research projects and are highly conscious of the problems to be taken by the post-graduate students.

Weakness Identified in the Program

- Equipment such as ELISA reader, PCR machine, Ultra-centrifuge, Gamma Counter etc and multimedia are not available in the Department, therefore difficulties are being faced in advance research.
- Internet is unavailable and latest literature and reviews are hardly available.
- There is need for short teacher training to faculty members, Museum and animal house are lacking.

Major Future Improvement Plans

- To develop labs equip fully with modern equipments for the advance research work.
- To extend facilities of museum and animal house.

Table-3: QUANTITATIVE ASSESSMENT OF THE DEPARTMENT (Last three years)

S. No.	Particulars	No.	Remarks
1	M. Sc degree awarded	~400	Every year 140 students get enrolled most of them acquire degree and join different institutes for higher degree while other got employment in various fields. Few are part of the faculty of same university.
2	M. Phil produced	Nil	Program started in 2007-08
3	PhD produced	6	In employment
4	Students: Faculty (ratio)	20:1	This faculty ratio includes National Professors of HEC also
5	Technical: non technical	4:1	

	(ratio)		
6	Average grade point	3	

Standard 1-4: Program outcomes

Program outcomes	Objectives: Zoology, Development, Teaching and Research		
	No/year	Criterion	Characteristics
M. Sc Zoology	70	Basic courses and a research report	Pilot project enables students to do thesis in M. Phil.
M. Sc Biology	70	Basic courses and a research report	Pilot project enables students to do thesis in M. Phil.
M.Phil Zoology	15	Courses, research work and presentation of thesis, local evaluation.	Solution oriented research work involving advance techniques and new findings
M. Phil Biology	15	Courses, research work and presentation of thesis, local evaluation.	Solution oriented research work involving advance techniques and new findings

PhD	**5**	**Advance research work and presentation of thesis, International evaluation.**	**Solution oriented research work involving advance techniques and new findings**

SURVEY OF DEPARTMENT OFFERING Ph.D. PROGRAMS

Department of zoology has started its Ph.D. program since 2001 and 4 students have completed Ph.D. from the department while 5 students are currently enrolled in department in Ph.D. program. Entrance in Ph.D. requires M.Phil. or M.Sc. with thesis. Ph.D. is research based and maximum time duration is 5 years. 7 courses of 3 credit hours each are necessary and comprehensive examination at the end of course work. A research paper is must to publish from Ph.D. thesis in HEC recognize journal. Thesis is sent to two internationally good reputed scientists from academically advanced countries for evaluation. There are 4 permanent faculty members holding Ph.D. degree in the department out of them 3 are HEC approved supervisors. Total 5 of articles published last year in International Academic Journals and 12 articles published last year in Asian Academic Journals by faculty members and students in the department. Faculty members are runing 3 research projects in the department funded by different organizations. There are 9 post-graduate students in the department holding scholarships/fellowships. Total research funds available to the department are 80,000 annually from all the resources.

The following information is required for EACH Department in which a Ph.D. program is offered.

1	**General Information:**	
1.1	Name of Department	ZOOLOGY
1.2	Name of Faculty	SCIENCES
1.3	Date of initiation of Ph.D. program	01-10-2001
1.4	Total number of academic journals subscribed in area relevant to Ph.D. program.	NIL
1.5	Number of Computers available per Ph.D. student	NIL
1.6	Total Internet Bandwidth available to all the students in the Department.	NIL
2	**Faculty Resources:**	
2.1	Number of faculty members holding Ph.D. degree in the department.	4
2.2	Number of HEC approved Ph.D. Advisors in the department.	3
3	**Research Output:**	

3.1	Total number of articles published last year in International Academic Journals that are authored by faculty members and students in the department.	5
3.2	Total number of articles published last year in Asian Academic Journals that are authored by faculty members and students in the department.	12
3.3	Total number of ongoing research projects in the department funded by different organizations	3
3.4	Number of post-graduate students in the department holding scholarships/fellowships.	9
3.5	Total Research Funds available to the Department	80,000
3.6	Number of active international linkages involving exchange of researchers/students/faculty etc. (Attach Details).	0
	Student Information:	
4.1	Number of Ph.D. degrees conferred to date to students from the Department during the past three academic years.	4
4.2	Number of Ph.D. students currently enrolled in the department.	5
4.3	Ratio of number of students accepted to total number of applicants for Ph.D. Program.	2:5
5	**Program Information**	
5.1	Entrance requirements into Ph.D. Program (M.Sc. / M.Phil.) Indicate subjects or M.Sc. / M.Phil.	M.Sc. with thesis or M.Phil.
5.2	Is your Ph.D. program based on research only? (Y/N)	Yes
5.3	Maximum number of years in which a Ph.D. degree has to be completed after initial date of enrollment in Ph.D. program.	5 years
5.4	Total number of post M.Sc. (16 year equivalent) courses required for Ph.D.	7 courses of 3 credit hours each
5.5	Total number of M.Phil. level courses taught on average in a Term / Semester.	5 courses 3 credit hours each
5.6	Total number of Ph.D. level courses taught on average in a Term / Semester.	3 courses 3 credit hours each
5.7	**Do your students have to take/write:**	
Ph.D. Qualifying examination (Y/N)		No
Comprehensive examination (Y/N)		Yes
Research paper in HEC approved Journal		One
Any other examination (Y/N)		No

5.8	Total number of International examiners to which the Ph.D. dissertation is sent.	2
5.9	How is the selection of an examiner from technologically advanced countries carried out?	Subject relevance/ recent status of research
5.10	Is there a minimum residency requirement (on campus) for award of Ph.D. degree?	3 years
6	**Additional Information**	
6.1	Any other information that you would like to provide.	Nil

Present Performance Measured for Research Activities

Faculty	Journal Publications (National & International)	Conference Publications (Proceedings Abstracts)	Projects
Dr. Mazhar Qayyum	19	28	2
Dr. Shamim Akhtar	22	23	2
Dr. Sajid Nadeem	25	----	1
Dr. Afsar Mian (HEC National Professor)	80	----	----
Dr. Azhar Baig (HEC National Professor)	90	----	----
Ms. Javaria Altaf	----	----	1
Mr. M. Irfan	----	1	----

SECTION-2

Criterion 2: Curriculum Design and Organization

Degree Title: M. Sc. /M. Phil/Ph. D. Zoology/Biology

Curriculum design and update is initiated by the faculty members of the Department after the approval of Board of Studies which is comprised of senior faculty members and subject specialist who is taken from other faculties or from other Universities or research Institutions. It is headed by the Chairman of the Department. The approved curriculum is then sent to Board of Faculty, headed by the Dean Faculty of Sciences. This Board consist senior faculty members from all the Departments of the faculty and subject specialists. Finally the curriculum is presented before the Academic Council which is comprised of the Professor, Associate Professor, Faculty Representatives and very senior subject specialists.

Definition of Credit Hour:
One credit hour is one theory lecture or two hours laboratory (practical / week). One credit hour carries 20 marks. A semester is of 18 weeks.

Pre-requisites

Academic Requirements:

A person holding B.Sc. in science or equivalent degree from any recognized institute with at least second division or overall 45 % marks is eligible to get admission.

Merit is determined by entry test and past academic performance as per following formula:

Matric	**10%**
Intermediate	**15%**
B.Sc.	**35%**
Entry test	**40%**

Definition of credit hour:

A student must complete a definite number of credit hours. One credit hour is one theory lecture or two hours laboratory (practical/week). One credit hour carries 20 marks.

Degree Requirements:

Degrees are awarded after completing the required number of credit hours (courses). Minimum Grade Point Average for obtaining the degree in 2.50. To remain on the roll of the university, a student shall be required to maintain the following minimum GPA/CGPA in each semester

Semester	**CGPA**

First	1.50
Second	1.75
Third	2.00
Fourth	2.50

Examination

In course work, student's evaluation is done by mid-term examination, assignments/quizzes and final examination. A student, who misses the mid-term examination, is not allowed a make-up examination and is awarded zero marks in that examination. In case a student does not appear in the final examination of a course, he shall be deemed to have failed in that course. In theory, weightage to each component of examination is as prescribed here under:

Mid Examination	30%
Assignments	10%
Final Examination	60%

For practical examination (if applicable) 100% is given to practical as scored final examination

A student is eligible to sit for the examination provided that he/she has attended not less than 75% of the classes in theory and practical, separately.
The minimum pass marks for each course are 40 % for M.Sc. and M.Phil. while 50% for Ph.D.

Presently following degrees are offered by the Department:

Credit Hours					
Degrees	**Min. Course Hrs**	**Thesis**	**Duration (in Semesters)**		**Passing CGPA**
			Min	**Max**	
M.Sc. (without thesis)	64	-	4	6	2.50
Ph.D.	18	50	8	10	3.00

Degree Plan

Presently three degree programs are organized by the

department

M. Sc Zoology: consists of 4 semesters/ 2 years. As a whole a students has to study 60 credit hours. Every subject of 3 credit hours include two theory & one practical class/ week and bears 60 marks (midterm 12, assignment/ presentation/test 4, final exam 24 and practical bears 20 marks). Degree is awarded after completing courses hours with at least CGPA 2.5.

M. Phil Zoology: consists of 4 semesters/ 2 years. As a whole a students has to study 30 credit hours courses. Every subject of 3 credit hours include two theory & one practical class/week and bears 60 marks (midterm 12, assignment/ presentation/test 4, final exam 24 and practical bears 20 marks). Degree is awarded after completing courses hours with at least CGPA 2.5 and submission of one year based thesis.

PhD: Consists of 10 semesters/ 5 years**.** 20 credit hours course work following synopsis/ thesis defense and submission of thesis to be approved by international scholars

Table: Attach courses

Standard 2.1: Assessment of the Zoology Curriculum.

Courses	Objectives		
	HRD	Research oriented	Integrated
M.Sc. Zoology	Highly Satisfactory	Satisfactory	Satisfactory
M.Sc. Biology	Highly Satisfactory	Satisfactory	Satisfactory
Ph.D.	Satisfactory	Satisfactory	Satisfactory

- The Curriculum fits very well and satisfies the core requirements for the program, as specified the respective accreditation body.
- The Curriculum satisfied the general arts and professional and other discipline required for the program according to demands and requirements set by the Higher Education Commission.

Standard 2-2: Elements *vs* Courses

Elements	Zoology/Biology Courses
Theoretical background	BIOL – 701, BIOL – 702, BIOL – 703, BIOL – 704, BIOL – 705, BIOL – 706, BIOL – 707, BIOL – 708, BIOL – 709, BIOL – 710, , BIOL – 712, BIOL – 713, BIOL – 714, BIOL – 715, BIOL – 716, BIOL – 717, BIOL – 718, , BIOL – 720, BIOL – 721, BIOL – 722,BIOL – 723, BIOL – 724, BIOL – 725, BIOL – 726,BIOL – 727,BIOL – 728, BIOL – 729, ZOOL-102, ZOOL-501, ZOOL-701, ZOOL-702, ZOOL-703, ZOOL-704, ZOOL-705, ZOOL-706, ZOOL-707, ZOOL-708, ZOOL-709, ZOOL-710, ZOOL-712, ZOOL-713, ZOOL-714, ZOOL-715, ZOOL-716, ZOOL-717, ZOOL-718, ZOOL-721, ZOOL-722, ZOOL-723, ZOOL-724, ZOOL-725, ZOOL-726, ZOOL-727, ZOOL-728, ZOOL-729, ZOOL-731, ZOOL-732, ZOOL-733, ZOOL-734, ZOOL-735, ZOOL-736, ZOOL-737, ZOOL-738, ZOOL-739, ZOOL-740, ZOOL-741
Problem analysis	BIOL -711, BIOL – 720, BIOL – 719, ZOOL-719, ZOOL-720,
Solution Design	BIOL -711, ZOOL-730,

Standard 2-3:

Program	Credit hours/ semester	Total Credit hours	Theory	Practical	Other
M.Sc. Zoology	16	64	40	24	N.A
M.Sc. Biology	16	64	40	24	N.A
Ph.D.	9	18	15	3	6 credit hours for research work/thesis.

Standard 2-4:

According to HEC requirement for M.Sc. program, the department is offering minimum 64 credit hours course work which includes 40 credits of theory and 24 credits of practical aspects. Similarly, for Ph.D. program department is offering 18 credits course work and a thesis minimum of 6 credits hours.

Standard 2-5:

- For M.Sc. and Ph.D. programs, attendance required in each course is 75%. A seminar of one credit hour is compulsory at the post graduate level. Synopsis and thesis will be defended at Ph.D. level in open forum.

Standard 2-6:

There is deficiency of information technology related courses but some activities and courses in program are useful to give basic training of computer use.

S. No.	Course No.	How applied and integrated through out the program
1	BIOL-711, ZOOL-711	Research planning and report writing require the basic knowledge of computer sciences. It urges the students to learn basic use of computer
2	ZOOL-720, BIOL-720	Seminar preparation requires the basic knowledge of computer sciences. It urges the students to learn basic use of computer
Note: Programs include some minor courses of statistics (STAT-700, STAT-701, STAT-702), which enhances the skills to use statistical software.		

Standard 2-7:

Enhancing Oral and Written Communication Skills of the students

- **A seminars of one credit hours is compulsory at the post graduate level**
- **A course of 3 credit hours research planning and report writing has been integrated in the curriculum of M. Sc level**
- **Assignments are given to M. Sc & Ph. D students on specific titles (part of the course) which are presented orally and given as written report (assignments) by the students which have increased their oral and written communication skills.**

SECTION 3

Criterion 3: Laboratories and Computer Facilities

- **Laboratory Title**:

- Microbiology and Parasitology lab
- Reproductive Physiology/Endocrinology
- Wildlife & Biodiversity
- Animal Physiology
- General lab

Location and Area:

Faculty of Sciences, D-Block, 2nd Floor, New Academic Block

- **Objectives:**

Laboratories are used for:

- Practical exercise and demonstrations to graduate students in their introductory and major courses
- Research work for the Post-graduate students
- Used for implementing the funded projects by the University, HEC, PSF, PARC and other agencies.
- Laboratories are well specious and adequate. In view of the equipment available research work being done and future expansion programs, laboratories do not meet our requirements.
- Major apparatus viz equipments: Microscopes, autoclave, incubator, deep freezer, refrigerators, laminar flow cabinet, pH meter, elective balance, slide and overhead projectors, shaker, hitter, pipettes are present but some are out dated and out of order Safely Regulations: Safety measures are not available against fire (Extinguishers), minor hazards and accidents, injuries (First Aid Kit). However, the University maintains a Medical Dispensary for such incidents.

Standard 3.1: Laboratory Manuals:

- Laboratory manuals of each subject (Microbiology and Parasitology, Reproductive Physiology, Wildlife & Biodiversity, Animal Physiology) are not available. The department has no library at all. However, individual teachers have their books.

Equipments regards molecular approaches are lacking e.g.

Centrifuge (slow and ultra), PAG-Electrophorsis apparition, PCR Spectrophotometer. Moreover, department requires an animal house and a museum

Standard 3.2: Support/Laboratory Personal for Maintenance of

Laboratory

Laboratories are maintained by only one laboratory assistant (equipment, glassware, chemicals, material etc). A laboratory attendant assists the students in practicals, cleaning and washing.

Standard 3.3: Computing Infrastructure and Facilities

- ***Computer facilities***: Not a/available to all faculty members and the post graduate students
- ***Safety arrangements***: The department is located on the 2nd floor, there is no emergency exist for the labs and no exhaust fan. No first aid kits/ facilities provided in the laboratories/department.

SECTION 4:

Criterion 4: Student Support and Advising

The university organizes support programs and provide information regarding admission, scholarship schemes etc. Department in its own capacity arrange orientation and guided tours of department. Director Student Affairs arranges various cultural activities and solve the student's problems. However currently there is no Parent Teacher association.

Standard 4.1: Frequency of Courses

- Courses are taught as per criteria laid down by HEC.
- Courses are offered according to the scheme of study approved by Academic Council and courses are offered as per the availability and expertise of the teachers.
- Elective courses are offered according to the policy of the university.
- For postgraduate programs, a variety of courses are offered according to demand of the profession.

Standard 4.2: Structure of the Courses

Theoretical as well as practical aspects are focused in designing the courses. Theoretical problems are explained and assignments are also given to the students. Practical are carried out in the labs as well as in the field. Field visits to related research organizations are also organized for the awareness of the students about the latest developments in the area and to stimulate them for discussion and teach/student interaction.

- Board of Studies approved the course contents

- **Faculty members interact frequently to the students to solve their problems. Students are always welcome to ask questions in class rooms and teachers are also available even after the classes.**

Standard 4.3: Guidance to the students

Following steps have been taken for the guidance of the students:

- **Information about the program requirements are provided to the students through the office of the head of the department.**
- **Through the personal communication of the teachers with the students**
- **Students can also contact with relevant teachers whenever they face any professional problem.**
- **Director Student Affairs is appointed by the university to facilitate the students and to solve their problems. However, there is no counseling Cell in the department.**
- **Students can interact with the teachers/scientists in the universities or research organization according to their requirement and there is open option for the students to get the membership in the professional societies like Pakistan Zoological Society and other relevant professional societies.**
- **Directorate of Placement Bureau has been established by the University, which help the students in exploring the job opportunities.**

SECTION 5

Criterion 5: Process Control

It includes student admission, student's registration, faulty requirement activities which are dealt by various statutory bodies and the university administration.

Standard 5.1: Program Admission Criteria

- The admission advertisement is given in the National Papers by the Registrar office. The criteria and rules of the admission are followed set by the University.
- Admission criteria: at least 2nd division in B. Sc and Entry test for M. Sc degree.
- PhD admission is based on the recommendations of supervisory committee
- Admission criteria is revised every year before the announcement of admissions

Standard 5.2: Process of Registration

- The student's name, after completion of the admission process, is forwarded to the Registrar Office for proper registration in the specific program and the registration numbers are issued to the students.
- Students are evaluated through Mid, Final and Practical exams and through assignments
- Registration is done for one time for each degree but evaluation is done through the result of each semester. If the students fulfill the criteria of the university they are promoted to the next semester.
- In general, the students are registered on competition bases keeping in view the academic and research standards.

Standard 5.3: Recruiting Process for Faculty

Recruitment policy developed by the university is according to HEC rules.
Induction of all posts is done as per rule:

- Vacant and newly created positions are advertised in the National newspapers, applications are received by the Registrar office, call letters are issued to the short –listed candidates on the basis of experience, qualification, publications and other qualities/activities as per rules of the university
- The candidates are interviewed by the University Selection Board, principal and alternate candidates are selected.
- Selection of candidates is further approved by the Syndicate and then candidates are invited to join the university within a specified period.
- Induction of new candidates depends upon the number of approved vacancies.

- At present, no procedure exists for retaining highly qualified faculty members. However, the revised pay scales of structure is quite attractive
- HEC also supports appointments of highly qualified members as foreign faculty Professors, National Professors and deputes them in various departments of the university.

Standard 5.4: Teaching and Delivery of Course Material

- The department revises the curriculum time to time depending upon the requirements, innovations and new technology to enhance the high quality teaching.
- With the emergence of new fields, new courses are designed and included in the scheme of study
- Students usually purchase low price editions books. Very few related books are also available in the university library, where documentation, copying and internet facilities are available.
- Some teachers also provides notes to the students
- Most of the lectures are supplemented by overhead, slides and pictures
- All efforts are made that courses and knowledge imparted meet the objectives and outcome. The progress is regularly reviewed in the staff meetings.

Standard 5.5: Completion of Program Requirements

The controller of examinations announces the date of commencement of examination. After ~20-30 days of the examinations, the controller office notifies the results of the students. The evaluation procedure consists of mid and final examinations, practical formulas, assignments and reports, oral and technical presentations. Candidates who secure 80% or more marks are awarded grade A. Gold medals are awarded to the students who secure highest marks. Degrees are awarded to the students on the annual convocation that is held every year.

SECTION 6

Criterion 6: Faculty

Standard 6.1: Full Time Faculty

Table:

Name of Faculty Member	Designation	Qualification	Name of Country Awarding Highest Degree	Date of Birth DD.MM.YY	E-mail Address
Dr. Afsar Mian	HEC Professor	Ph.D.	Pakistan	7.4.1947	afsarmianpk@yahoo.com
Dr. Mirza Azhar Beg	HEC Professor	Ph.D.	USA	16.6.1940	-
Dr. Yasmin Musseddeq	Professor	Ph.D.	Pakistan	21-10-1954	yasmin_uaar@hotmail.com
Dr. Mazhar Qayyum	Associate Professor	Ph.D.	Pakistan	7.6.1963	Mazhar_dr@yahoo.com
Dr. Shamim Akhtar	Assistant Professor	Ph. D	Pakistan	13.06.1964	sashraf1993@yahoo.com
Dr. Muhammad Sajid Nadeem	Assistant Professor	Ph. D	Pakistan	04.04.1970	sajidnm@hotmail.com
Ms. Javaria Altaf	Lecturer	M.Phil	Pakistan	11.10.78	Javaria@hotmail.com
Dr. Farhana Riaz	Lecturer	Ph. D	Pakistan	25.07.1972	Farhana_ahmer@yahoo.com
Mr. Muhammad Irfan	Lecturer	M. Phil scholar	Pakistan	16.02.1984	Muhammadirfan11@gmail.com

Table. Faculty Distribution by Program Areas in Zoology/Biology

Program area of specialization	Courses in the area and average number sections per year	Number of faculty members in each area	Number of faculty with Ph. D degree
Microbiology Parasitology	7	2	2
Wildlife	6	3 (2 National professors)	3 (2 National professors)
Biodiversity	2	1	-
Reproductive physiology	2	1	1
Endocrinology	2	1	-

Table: List of publication: (Annexure)

1. Dr. MAZHAR QAYYUM

INTERNATIONAL

1. **SYED SHAKEEL RAZA RIZVI, SHAZIA ALTAF, SADAF LATIF, AFZAAL AHMAD NASIM AND MAZHAR QAYYUM, 2004. Chronic orchidectomy does not influence the sensitivity of the pituitary somatotropes to varying doses of GHRH administered intravenously to the adult male Rhesus monkey. Life Sciences (USA) 75: 1041-1050.**

2. **SYED SHAKEEL RAZA RIZVI, SHAZIA ALTAF, AFZAAL AHMAD NASIM, M. ASIF, ZAHID RASUL AND MAZHAR QAYYUM, 2001. The effect of ketamine hydrochloride anesthesia on basal and N-methyl-D, L-Apartate induced plasma prolactin secretion in the adult male Rhesus monkey. Life Sciences (USA) 68:1083-1093.**

3. **ABDUL RAB, M. AFZAL, N. AKHTAR, A. BARLAS AND MAZHAR QAYYUM, 2001. Incidence of epizootic ulcerative syndrome (EUS) in fresh water fishes in the endemic area of Punjab, Pakistan. Bangladesh J. Fish Res. 5:45-52.**

NATIONAL

1. **MUHAMMAD FAYYIAZ-UL-HAQ, MAZHAR QAYYUM AND RIAZ AHMED PAL, 1990. Prevalence of helminth parasites in digestive track of house rat, *Rattus rattus* refescens in the twin cities of Rawalpindi-Islamabad. J. Sci. & Tech. Univ. of Peshawar 14:65-70.**

2. **RIAZ AHMED PAL AND MAZHAR QAYYUM, 1991. Seasonal changes in Faecal egg counts and relationship between egg per gram and total Strongyles worm burdens of sheep and goats in Rawalpindi-Islamabad region. Proc. Pak. Conger. Zool. 11:167-172.**

3. **RIAZ AHMED PAL AND MAZHAR QAYYUM, 1992. Breed, age and sex-wise distribution of gastrointestinal helminthes of sheep and goats in and around Rawalpindi region. Pak. Vet. J. 12:60-63.**

4. **RIAZ AHMED PAL AND MAZHAR QAYYUM, 1992. Distribution of gastrointestinal helminthes of goats in Swat Valley (NWFP). Pak. J. Zool. 24:359-360.**

5. **RIAZ AHMED PAL AND MAZHAR QAYYUM, 1993. Prevalence of gastrointestinal nematodes of sheep and goats in upper Punjab, Pakistan. Pak. Vet. J. 13:138-141.**

6. **RIAZ AHMED PAL AND MAZHAR QAYYUM, 1993. Distribution of gastrointestinal amphistomes and cestodes in small ruminants grazed on irrigated and non-irrigated pasture zones. Proc.Pak.Congr.Zool.13: 307-313.**

7. **RIAZ AHMED PAL, MAZHAR QAYYUM AND MUHAMMAD YASEEN, 1995. A serological antibody survey for *Toxoplasma gondii* in twin cities of Rawalpindi and Islamabad. Pak.**

J. Med. Assoc. 45:188-189.

8. RIAZ AHMED PAL, MAZHAR QAYYUM AND MUHAMMAD YASEEN, 1996. Seroprevalence of antibodies to *Toxoplasma gondii* with particular reference to obstetric history of patients in Rawalpindi-Islamabad. Pak. J. Med. Assoc. 46: 56-58.

9. RIAZ AHMED PAL AND MAZHAR QAYYUM, 1996. A review on anthelmintic resistance in small ruminants prevalence, recent understanding and future prospects of nematodes control. Pak. Vet. J. 16: 107-114.

10. SAJID ALI, QASIM KHAN, MAZHAR QAYYUM AND M. FETH ULLAH KHAN, 2000. Prevalence of gastro-intestinal parasites in sheep and goats maintained at NARC, Islamabad. Pak. Vet. J. 20:157-158.

11. ARIFA MAHMOOD, SOBIA RAFIQUE, MAZHAR QAYYUM AND ALI ABBAS QAZILBASH, 2001. Prevalence of nosocomial and community-based methicillin-resistant *Staphylococcus aureus* (MRSA). Pak. Med. Res. 3:86-89.

12. SOBIA RAFIQUE, ARIFA MAHMOOD, MAZHAR QAYYUM AND ALI ABBAS QAZILBASH, 2002. Prevalence patterns of community-based and nosocomial urinary tract infection caused by *Escherichia coli*. Pak.J.Biol. Sci. 5:494-496.

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Standard 6.2: Effective Programs for Faculty Development

- **Professional training and availability of adequate research and academic facilities are not provided according to the faculty members**
- **Very less incentives in the form of allowances to thesis supervisors have been**

implemented lately to promote high standard research

- Facilities used include mainly internet access which is unavailable in the department in addition to library facility with no latest subject books.

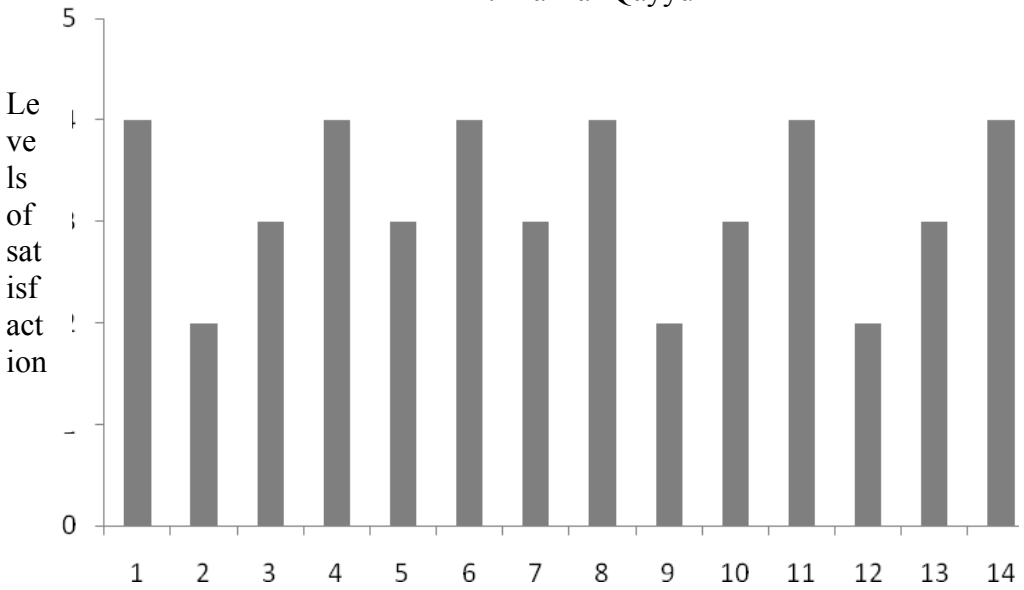
Standard 6.3: Faculty Member Motivation

- Time to time provision of enthusiasm to the young faculty by the senior faculty members

Proforma No. 5: Results of Faculty Survey

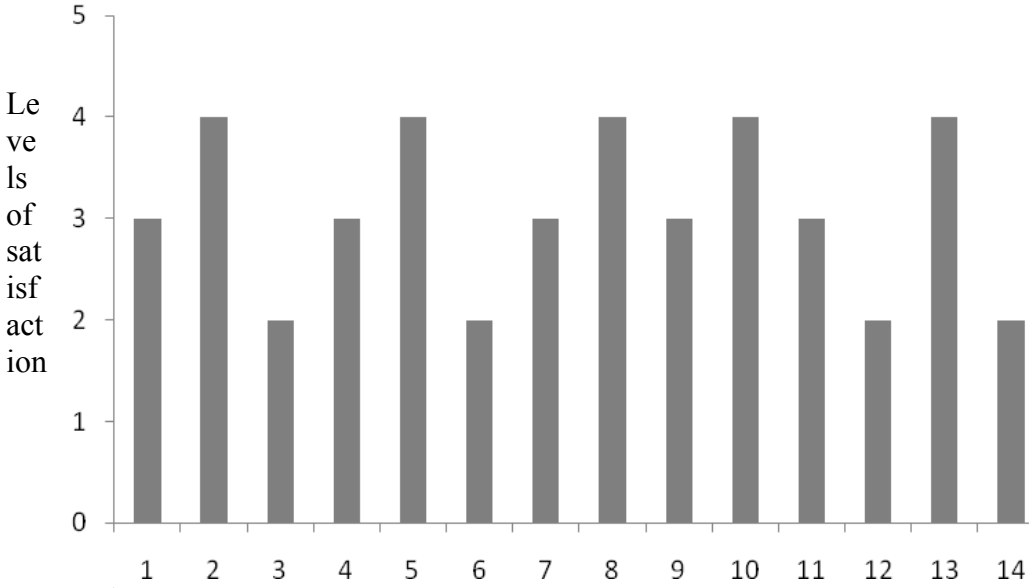
According to the data faculty members are satisfied with various aspects of their job such as clarity about promotion followed by mentoring and administrative support, job security, support from the department etc. But, they are slightly satisfied with the mentor available to them and progress through ranks. The worst aspect is the amount of time teachers find to interact with their families. This is basically due to the shortage of teachers because only five regular faculty members are at work.

Dr. Mazhar Qayyum



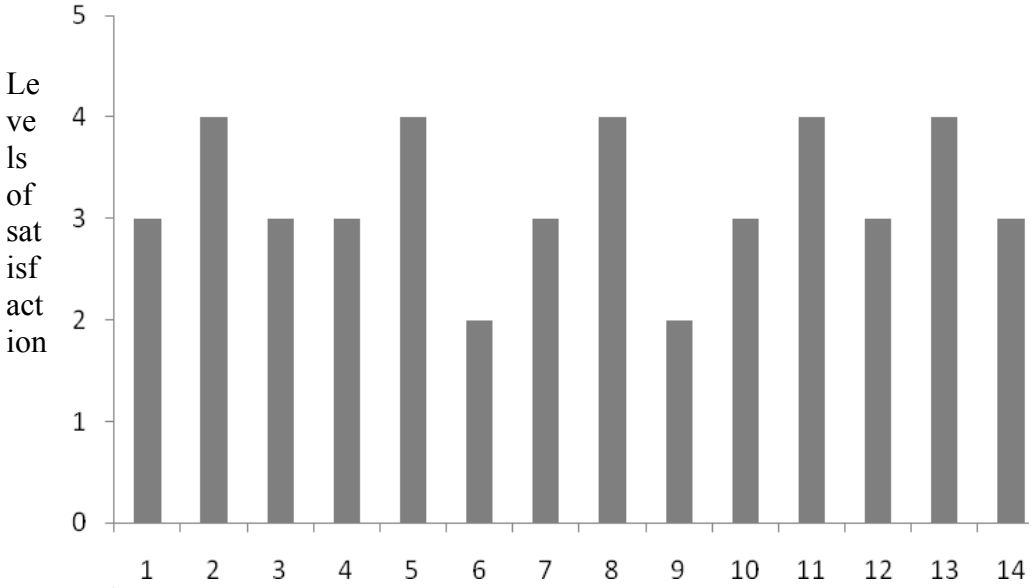
1 your mix of research, teaching and community services
2 The intellectual stimulation of your work
3 Type of teaching/research you do
4 Your interaction with students
5 Cooperation from colleague you receive
6 The mentor available to you
7 Administrative support from department
8 Providing clarity about the faculty promotion process
9 Your prospects for advancement and progress through ranks
10 Salary and compensation packages
11 Job security and stability at the department
12 Amount of time you have for yourself and family
13 The overall climate at the department
14 Whether the department is utilizing your experience and knowledge

- Dr. Shamim Akhtar



1 your mix of research, teaching and community services
2 The intellectual stimulation of your work
3 Type of teaching/research you do
4 Your interaction with students
5 Cooperation from colleague you receive
6 The mentor available to you
7 Administrative support from department
8 Providing clarity about the faculty promotion process
9 Your prospects for advancement and progress through ranks
10 Salary and compensation packages
11 Job security and stability at the department
12 Amount of time you have for yourself and family
13 The overall climate at the department
14 Whether the department is utilizing your experience and knowledge

- Dr. M. Sajid Nadeem



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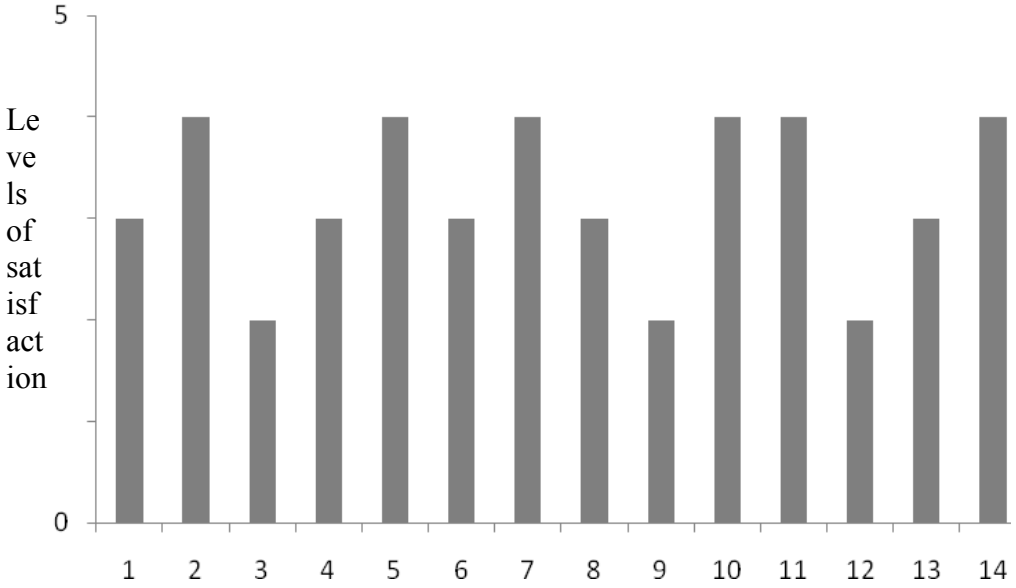
- Dr. Javaria Altaf



0. Highly unsatisfied
1. Unsatisfied
2. Slightly satisfied
3. Satisfied
4. Highly satisfied

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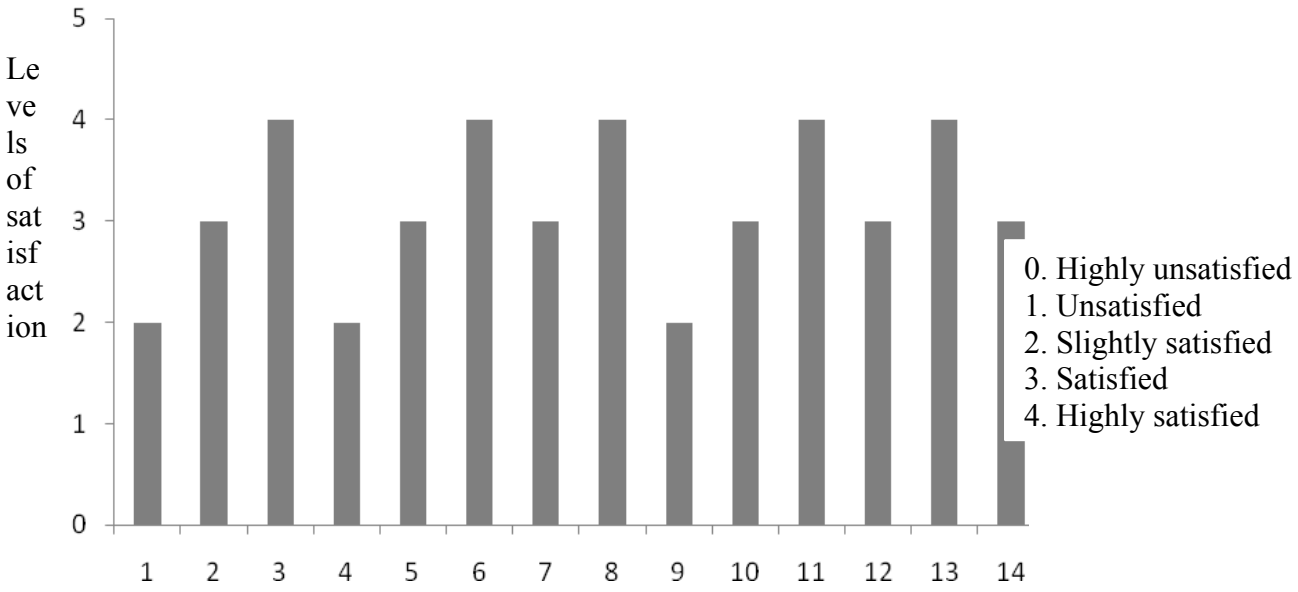

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SECTION 7

Criterion 7: Institutional Facilities

INSTITUTIONAL FACILITIES

The institution must have the infrastructure to support new trends in learning such as e-learning

- **Electronic library books and journals are not available for learning purpose.**
- **Insufficient facilities regarding the infrastructure to support new trends in learning or prevalent**

The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personal.

- **Insufficient library's technical collection of books**
- **Recommended books, relevant journals of the programs are not available to the students.**
- **However, this aspect needs to be strengthening of discipline.**

Class rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.

Standard 7.1:Infrastructure

The faculty doesn't have access to internet and to e-library which is very helpful for the high quality education and producing research of international standard.

The department has the following shortcomings/problems:

- **Majority of the faculty members do not have access to the PCs as department have only 1 Computers provided by the university and three are by projects and HEC scholars**
- **Telephone sets/connections are not present.**

Standard 7.2: Library Facilities

The university Central Library has very limited number of books, journals and periodicals. It's a small library in term of space and facilities with no catalogue systems. It does not meet the standards of a university library. Department itself does not have a library.

Standard 7.3:Class Room and Faculty Offices

Two class rooms are available without any multimedia. Two to three teachers are sharing rooms. Unavailability of most modern and related books and internet affects the quality of teaching. Common room for students is also missing.

Section 8

Criterion 8: Institutional support

The university administration is trying to provide all the possible facilities to the departments and has been struggling hard for the up gradation of departments and establishing new faculties and institutes. The university is also trying to attract highly qualified faculty.

INTSTITUTIONAL SUPPORT:

- Department has been shifted to new academic block where facilities are better than ever.
- Faculty offices are inadequate and therefore two or three teachers have one office.

The department at present avails all the human resources assigned with the addition of two national Professors from HEC.

Standard 8-1: Support and financial resources

The department has limited funds and Individual research grants for students and faculty are mainly supporting the departmental research activities. There is a dire need for increasing the financial resources allocated to the department to establish a library, laboratories and computer facilities. Zoology department has recently submitted a project for strengthening of department and it is hoped to be funded next year.

Standard 8-2: High quality Research scholars

The intake is once in a year. A strict merit policy applies and GRE/NTS is preferred.

Standard 8-3: Financial resources

Total budget of the department of Zoology and Biology for the financial year 2007-08 is Rs. 200,000 which not fulfills the departmental needs particularly for the purchase of equipment, chemicals etc.

SUMMARY

The Department of Zoology/Biology offers research oriented M. Sc., M. Phil. and Ph. D. degrees in Zoology/Biology. Students which fulfill the criteria are admitted in M. Sc., M. Phil. and Ph.D. degrees program. The course aims to give a wide coverage of modern Zoology, followed by the opportunity to specialize in one or more areas reflecting the student's particular interest. Since animals cannot be studied in isolation, the course includes elements of microbiology, plant science, genetics and biochemistry, with the opportunity of carrying some of these additional subjects to a more advanced level. Graduates in zoology have an understanding of the key concepts of modern Zoology, and be aware of the scope and limitations of the subject. In addition they have sufficient specialist knowledge in selected areas to allow them to pursue a research degree in animal science. Graduates have acquired a general biological and scientific background as well as having gained experience in problem solving and have developed the communication, numerical and computer skills required for a wide range of careers. In order to assess whether department is fulfilling its objectives or not, surveys on various aspects such as course evaluation, teacher evaluation, alumni survey, research/graduating students surveys and faculty survey etc. have been conducted by the departmental members of the program team. The data were collected on prescribed proformae and later on analyzed and presented in the form of graphs and tables. The data revealed that students are satisfied with the subject approach of faculty members, their fairness in examination, and level of knowledge. But, there are only five permanent faculty members and most of the faculty is hired as visiting faculty. Course evaluation survey showed that students are satisfied with

workload and value of knowledge provided to them. According to research student survey, availability of internet and access to various scientific journals is limited. Similarly, department has limited budget for research purposes which cannot support laboratories and research activities. According to employer students are good at job but they have very basic knowledge of information technology and computer skills. Faculty members are satisfied with their salaries but they have sever concerns about the workload as most of them are agreed that they have very less time for themselves.

The performance of the department may be further improved considering; a) Laboratory needs rehabilitation and new equipments, b) There is need of new faculty appointments as only five permanent teachers are available over there, c) Faculty members have pointed that in their workload research students (no. of M. Phil and Ph. D. students) should also be considered, d) There is also need to improve mix of research and teaching proportion to produce professionally sound graduates, e) At present there are no arrangements for professional training of the supporting staff. Such trainings will improve their abilities for enhancing the quality of research and teaching. It would be worthy to mention here that proper man at proper place is not being practiced; f) There is a shortage of personal computers and unavailability of Internet which creates many impediments. Improvement in this area will also speed up the level of research and teaching, g) The budget allocated to the department hardly meets the requirements of the research, h) At present there is no departmental library. Allocation of sufficient funds for this purpose will be helpful in subscribing reputed journals and purchase of books that will ultimately boost quality of learning, teaching and research, i) Animal house is required to house the experimental animals during the research.

Annex-i

University of Arid Agriculture, Rawalpindi

Department of Zoology/Biology

List of courses offered

M. Sc Biology		
Course No.	**Course Title**	**Credit Hours**
Major Courses		
BIOL-701	Cellular Biology	3(2-2)
BIOL-704	Environmental Biology	3(2-2)
BIOL-706	Biosystematics	4(3-2)
BIOL-708	Economic Biology	4(3-2)
BIOL-709	Fundamental of Microbiology and Immunology	3(2-2)
BIOL-711	Research Planning and Report Writing	3(1-4)
BIOL-712	Principles of Biotechnology	3(2-2)
BIOL-720	Seminar-I	1(1-0)
BIOL-725	Animal Reproductive Biology	3(2-2)
BIOL-728	Concept of Genetics	3(2-2)
BIOL-702	Physiological Systems of Animal	3(2-2)
BIOL-703	Plant Physiology	3(2-2)
BIOL-704	Environmental Biology	3(2-2)
BIOL-705	Evolutionary Biology	2(2-0)
BIOL-707	Biodiversity	4(3-2)
BIOL-709	Fundamentals of Microbiology and Immunology	3(2-2)
BIOL-710	Mycology and Plant Pathology	3(2-2)
BIOL-712	Principles of Biotechnology	3(2-2)
BIOL-722	Host/Parasite Interactions in Animals	3(2-2)
BIOL-723	Immunology	3(2-2)
BIOL-726	Pathophysiology	3(2-2)
BIOL-729	General Pharmacology	3(2-2)

M. Sc Zoology		
Course No.	**Course Title**	**Credit Hours**
Major Courses		
ZOOL-701	Cell Biology	3(2-2)
ZOOL-703	Principles of Genetics	3(2-2)
ZOOL-706	Developmental Biology	3(2-2)
ZOOL-709	Principles of Animal Systemics	2(1-2)
ZOOL-711	Research Planning and Report Writing	3(1-4)
BIOL-704	Environmental Biology	3(2-2)
BIOL-709	Fundamental of Microbiology and Immunology	3(2-2)
BIOL-712	Principles of Biotechnology	3(2-2)
BIOL-704	Environmental Biology	3(2-2)
ZOOL-702	Animal Diversity and Zoogeography	3(2-2)
ZOOL-704	Comparative Animal Physiology	3(2-2)
ZOOL-705	Animal Behavior	2(2-0)
ZOOL-706	Developmental Biology	3(2-2)
ZOOL-707	Comparative Endocrinology	3(2-2)
ZOOL-708	Aquaculture and Fisheries	3(2-2)
ZOOL-710	Parasitology	2(2-0)
ZOOL-713	Clinical Bacteriology	3(2-2)
ZOOL-714	Medical Virology	3(2-2)
ZOOL-715	Faunal Biodiversity of Pakistan	3(2-2)
ZOOL-718	Applied Reproductive Physiology	3(2-2)
ZOOL-720	Seminar	1(1-0)
ZOOL-733	Ornithology	3(2-2)
ZOOL-751	Project Planning,, Monitoring + and Evaluation	3(3-0)

M. Phil Biology)

Course #	Courses Title	Credit Hours
BIOL-724	Conservation Biology	3(2-2)
BIOL-725	Animal Reproductive Biology	3(2-2)
BIOL-716	Aromatic, Poisonous and Medicinal Plants	3(2-2)
BIOL-720	Seminar-I	1(1-0)
Course #	Courses Title	Credit Hours
ZOOL-734	Mamology	3(2-2)
ZOOL-713	Clinical Bacteriology	3(2-2)
BOT-715	Phytogeography	3(2-2)
BOT-724	Molecular Basis of Morphogenesis	3(3-0)
BOT-725	Molecular Advances in Phytosystematics	3(2-2)
BOT-735	Plant Microbe Interactions	3(2-2)
BCH-732	Medical Nutrition Therapy	3(2-2)
BCH-734	Numerical Problems in Biochemistry	3(3-0)
BCH-735	Principles of Advanced Biochemical Techniques	3(3-0)
ZOOL-725	Human Genetics	3(2-2)
BIOL-729	General Pharmacology	3(2-2)
BIOL-723	Immunology	3(2-2)
BIOL-718	Neurology & Neuro Chemistry	3(2-2)
BIOL-722	Host/Parasite Interactions in Animals	3(2-2)
BIOL-714	Biosociology	3(2-2)
BIOL-719	Special Problems	1(1-0)
BIOL-720	Seminar-II	1(1-0)
STAT-701	Experimental Statistics	3(3-0)
BCH-731	Advances in Biochemistry (Compulsory for Students in Biochemistry)	3(3-0)
ZOOL-718	Applied Reproductive Physiology	3(2-2)
ZOOL-714	Medical Virology	3(2-2)
ZOOL-715	Faunal Biodiversity of Pakistan	3(2-2)
ZOOL-733	Ornithology	3(2-2)
BOT-728	Principles of Genome Analysis and Genomics	3(3-0)
BOT-713	Medicinal Plants of Pakistan	3(2-2)
BOT-715	Phytogeography	3(2-2)
BOT-734	Forensic Botany	3(3-0)
BOT-722	Plant Nutrition	3(2-2)

M. Phil Zoology

Course #	Course Title	Credit Hours
ZOOL-713	Clinical Bacteriology	3(2-2)
ZOOL-734	Mammalogy	3(2-2)
ZOOL-725	Human Genetics	3(2-2)
ZOOL-720	Seminar-I	1(1-0)

BIOL-724	Conservation Biology	3(2-2)
BCH-732	Medical Nutrition Therapy	3(2-2)
BCH-734	Numerical Problems in Biochemistry	3(3-0)
BCH-735	Principles of Advanced Biochemical Techniques	3(3-0)
BIOL-725	Animal Reproductive Biology	3(2-2)
ZOOL-714	Medical Virology	3(2-2)
ZOOL-718	Applied Reproductive Physiology	3(2-2)
ZOOL-733	Ornithology	3(2-2)
ZOOL-715	Faunal Biodiversity of Pakistan	3(2-2)
ZOOL-712	Clinical Endocrinology	3(2-2)
ZOOL-719	Special Problem	1(1-0)
ZOOL-720	Seminar-II	1(1-0)
STAT-701	Experimental Statistics	3(3-0)
BCH-731	Advances in Biochemistry	3(3-0)
BCH-708	Human Physiology	3(2-2)
BCH-721	Environmental Biochemistry	3(2-2)
BCH-736	Proteomics	3(2-2)
BIOL-722	Host Parasite Interactions in Animals	3(2-2)
BIOL-723	Immunology	3(2-2)

Ph. D Zoology

Course #	Course Title	Credit Hours
BCH-751	Advances in Biotechnology	3(3-0)
BOT-751	Integrated Agrobiological Resources Management	3(3-0)
ZOOL-720	Seminar-I	1(1-0)
ZOOL-751	Project Planning,, Monitoring and Evaluation	3(3-0)
ZOOL-720	Seminar-II	1(1-0)
STAT-702	Experimental Design and Computer Applications	3(2-2)

FACULTY RESUMES

Name	Dr. Mazhar Qayyum
Personal	Pir Mehr Ali Shah-Arid Agriculture University Murree Road,Rawalpindi, 46300 Pakistan Ph: 051-9290147-9, 9290156 Ext: 167 Res. Ph: 051-2601126 E-mail: mazhar_dr@yahoo.com
Experience	February, 2005-to-date "Associate Professor" Department of Zoology, Pir Mehr Ali Shah, Arid Agriculture University, Rawalpindi, Pakistan Jan,98-to-February, 2005 "Assistant Professor" Department of Zoology, Pir Mehr Ali Shah, Arid Agriculture University, Rawalpindi, Pakistan July, 94-December, 1997 "Scientific Officer" in project funded by University of Sterling, Scotland, U.K" at Aquaculture and Fisheries Research Institute, National Agriculture Research Council, Islamabad. 1992 -June 1994 "Senior Research Fellow" in the project entitled "Some Epidemiological Aspects of Gastrointestinal Nematodes of Sheep of Sub-Tropical Zone of Pakistan" in Department of Biological Sciences, Quaid-i-Azam University, Islamabad. 1989-1991 "Junior Research Assistant" in the project entitled "Systematic of Gastrointestinal Parasites of Sheep". (Funded by University Grants Commission) in Department of Biological Sciences, Quaid-i-Azam University, Islamabad.
Honor and Awards	
Memberships	• Zoological Society of Pakistan • Pakistan Fisheries Society • Member World Association for the Advancement of Veterinary Parasitology
Graduate Students Postdocs Undergraduate Students *Honour Students*	*M. Sc Theses Supervised* 1. Ali Muhammad 2005 Genetic variations in Fasciola hepatica isolate from large ruminants of Barani areas 2. Aneela Asghar 2005 Determination of toxic metals in water and fish from upstream and downstream Rawal lake: as indicators of environmental pollution 3. Wahab Munir 2005

	Detection of multiple anthelmintic resistances against naturally acquired nematodes in awassi sheep reared at livestock khairimurat production nit Pakistan **4. Sajid Mehmood 2005** **Field evaluation of Famacha, after using different anthelmentic in hairy goats (jattal) reared at different small ruminant's farms** **5. Ishtiaq Ahmed 2005** **Comparative efficacy of ivermectin, albendazole & levamisole against gastrointestinal nematodes infection in Bulkhi sheep** **6. Wajeeha Rizvi 2005** **Community-based study of hepatitis C viral infections and its association with type 2 diabetes among the patients with chronic liver disease** **7. Safwan Ullah Khan 2005** **Effect of replacement with soybean meal diets on growth performance of channel catfish (Actalurus punctatus)** **8. Shamsa Kanwal 2005** **Growth performance of American channel catfish (*lactalurus punctatus*) fed on different protein levels under pond culture system** **9. Rabia Khurshid 2005** **Effects of ascorbic acid on the productive performance and egg characteristics of desi and fayoum chicken maintained on deep litter** **10. Farah Razzaq 2004** **Comparative efficacy of angara disease vaccination (live and formalinized) and their immunomodulatory effects against new castle disease virus (NDV) in broiler chicks** **11. Tehseen Khalid 2004** **Effect of water supplemented potassium chloride on performance of broiler reared during summer season** **12. Shazia Rustam 2002** **Isolation and identification of pathogens of Enterobacteriacea family especially *Shigella* species with its Antibiogram in diarrhoeal patients** **13. Uzma Malik 2002**

	Incidence and antibiogram of *Streptococcus pyogenes* and *Streptococcus pneumoniae* in patients of respiratory infections ***M.Sc Theses (As a Supervisory Committee Member)*** **1. Sofia Khanum 2002** **Prevalence of *Salmonella* Species in Clinical Samples with their Antibiogram Pattern** **2. Muhammad Zia Ul Haq 2002** **Assciation of Hepatitis C Antibodies Chronic Liver Failure** **3. Malik Ghulam Sarwar 2004** **Effect of Varying Dietary Protein and Energy Levels on the Performance of Broiler Chicks** **4. Muhammad Saqlain 2005** **Evaluation of Antimicrobial activity in some Seasonal Vegetables against common Mammalian Pathogens** **5. Salma Abdul Rehman 2005** **Comparative Egg Characteristics and Proximate Composition of Rural Versus Commercial Breeds of Chickens** **6. Rashida Yasmin 2005** **A cross-sectional study of the relationship of the plasma growth hormone concentrations to the pubertal growth spurt in normal healthy boys** **7. Nadia Afzal 2005** **A cross-sectional assessment of the circulating concentrations of leptin and physicall changes during puberty in boys.** **8. Hafsa Afzal 2005** **Effect of Different energy values of old rice polish on growth performance of broiler chicks.** **9. Humaira Naureen 2006** **Effects of Pesticides on Choline Esterase Activity of Brain in Passerine Birds.** ***Ph. D Theses Supervised*** **1. Abdul Rab 2008**

	Studies on the prospects of introducing American Channel Catfish *Ictalurus punctatus* (Rafinesque) in pond fish culture system of Pakistan **2. Muhammad Afzal 2007** **Studies on Biology and Culture of *Aristichthys Nobilis* Richardson (Bighead Carp) for Aquaculture in Pakistan 2007** **3. Farhana Riaz Chaudhry 2007** **Study on the Biology of *Haemonchus Contortus,* in the Small Ruminants Grazing in Potohar Region, Pakistan** **4. Shamim Akhter 2006** **Effect of Milk based Extenders Containing Different Antibiotics on Sperm Motility, Longevity, Morphology, Plasma Membrane Integrity, in Vivo Fertility and Bacterial Control of Liquid Semen from Buffalo Bulls** ***Ph. D Thesis (As a Supervisory Committee Member)*** **1. Muhammad Rafiq** **Biosystematics and Distribution of the Freshwater Fishes of Pakistan with Speciall Reference to the Subfamilies Noemacheilinae and Schizothoracinae 2007.** **2. Dr. Abid Mehmood 2007** **Development of Homologous in Vitro Fertilization Test to Predict Fertility of Buffalo Semen** **3. Raja Razi Ul Hussnain 2007** **Epidemiological and Clinical Prevalence of Hepatitis C with Diabetes Mellitus** **4. Tanvir Ahmad 2007** ***Helicobacter Pylori* Infection: Significance and Importance for Child Growth in Pakistan**
Service Activity	
Brief Statement of Research Interest	**Parasitology**
Publications	**International Journals** 1. **SYED SHAKEEL RAZA RIZVI, SHAZIA ALTAF, AFZAAL AHMAD NASIM, M. ASIF, ZAHID RASUL AND MAZHAR QAYYUM, 2001. The effect of ketamine hydrochloride anesthesia on basal and N-methyl-D, L-Apartate induced plasma prolactin secretion in the adult male Rhesus monkey. Life Sciences (USA), 68:1083-1093.**

2. **SYED SHAKEEL RAZA RIZVI, SHAZIA ALTAF, SADAF LATIF, AFZAAL AHMAD NASIM, AND MAZHAR QAYYUM, 2004. Chronic Orchidectomy does not influence the sensitivity of the pituitary somatotropes to varying doses of GNRH administered intravenously to the adult male Rhesus monkey. Life Sciences (USA), 75: 1041-1050.**

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	AND ALI ABBAS QAZILBASH, 2006. Enterobacteriaceae: Etiological Agents of Diarrhea. J. Med. Sci., 6(2): 149-154. 20. FARAH SADDIQI, MADAHIAH-BINT-E-MASOOD, NOOR-US-SABA, ABDUS SAMAD, MAZHAR QAYYUM AND ALI ABBAS QAZILBASH, 2002. Antibiogram Sensitivity Pattern of Methicillin-resistant *Staphylococcus aureus* Isolates from Pus Samples. Pakistan Journal of Biological Sciences 5 (4): 491-493. 21. SAADIA IRUM, FAHEEM TAHIR, FAZLI SUBHAN, SIKANDAR SULTAN, FARIYAL DEEPA, MAZHAR QAYYUM, ALI ABBAS QAZILBASH, AZRA KHANUM, BARJEES MAZHAR KAZI AND ATHAR SAEED DIL, 2003. Serum FSH Levels Among Various Age Groups of the Male Population of Pakistan. Hamdard Medicus, Vol. KLVI, No. 3. 22. ABDUL RAB, MUHAMMAD AFZAL, NASIM AKHTER, MUHAMMAD RAMZAN ALI, SAFWAN ULLAH KHAN, MUHAMMAD FARHAN KHAN, SULTAN MEHMOOD AND MAZHAR QAYYUM, 2007. Introduction of channel catfish *Ictalurus punctatus* (Rafinesque) in Pakistan and its performance during acclimatization and pond culture. Pakistan j.Zool., 39(4):239-244. 23. MUHAMMAD AFZAL, ABDUL RAB, NASIM AKHTER, SAFWAN ULLAH KHAN, REHANA KAUSAR AND MAZHAR QAYYUM, 2007. Morphometric and meristic studies of Bighead carp, *Aristichthys nobilis* (Richardson) introduced in Pakistan for aquaculture. Pakistan j. Zool., 39 (6):413-414. 24. MUHAMMAD AFZAL, ABDUL RAB, NASIM AKHTER, MUHAMMAD FARHAN KHAN, SAFWAN ULLAH KHAN AND MAZHAR QAYYUM, 2008. Induced Spawning of Bighead carp, *Aristichthys nobilis* (Richardson) by using different Hormones/Hormonal Analogues. Pakistan J. .Zool., 40 (4). 25. ABDUL RAB, SAFWAN ULLAH KHAN, MUHAMMAD AFZAL, MUHAMMAD RAMZAN ALI AND MAZHAR QAYYUM, 2008. Replacement of Fishmeal with Soybean Meal in Diets for Channel Catfish, *Ictalurus punctatus* Fry Introduced in Pakistan. Pakistan J. Zool.(Accepted)
Research Grants and Contracts	
Other Research or Accomplishments	
Selected Professional Presentations	1. RIAZ AHMED PAL AND MAZHAR QAYYUM, 1991.Seasonal changes in Faecal egg counts and relationship between egg per gram and total strongyl worm burdens of sheep and goats in Rawalpindi-Islamabad region (Proc. Pak. Congr. Zool, 11:310, 1991). 2. RIAZ AHMED PAL AND MAZHAR QAYYUM, 1993. Distribution of gastrointestinal amphistomes and cestodes in small ruminants grazed on irrigated and non-irrigated pasture zones (Proc. Pak. Congr. Zool., 13:94-95, 1993). 3. MAZHAR QAYYUM AND RIAZ AHMED PAL, 1994. Internal parasite (Strongyles)

	in lambs and ewes during periparturient and postparturient periods in sub-tropical zone. (Proc.Pak.Congr.Zool.,14:49,1994). **4. MAZHAR QAYYUM AND RIAZ AHMED PAL, 1995. The acquisition of *Moniezia expansa* by tracer lambs grazed on rain-fed area of Punjab, Pakistan.(Proc. Pak.Congr.Zool.,15:75-76,1995).** **5. RIAZ AHMED PAL AND MAZHAR QAYYUM 1995. Seasonal occurrence of *Paramphistomum cervi* in tracer lambs grazed in sub-tropical zone of Pakistan. (Proc. Pak.Sci.Conf. December, 1995).** **6. RIAZ AHMED PAL AND MAZHAR QAYYUM, 1995. Management practices and nematodoses in lambs and ewes. (Proc.Pak.Sci.Conf. December, 1995).** **7. NASIM AKHTAR, RODNEY WOOTTEN, MAZHAR QAYYUM, MUHAMMAD AFZAL AND NAYYAR ABBAS MIRZA, 1996. Seasonal variations of *Rhabodona charsaddienses* in *Tor putitora* and *Schizothorax labiatus* from Khanpur dam reservoir, Pakistan (Proc. Pak. Congr. Zool, 16:1996).** **8. RIAZ AHMED PAL, RASHID QAYOOM QURESHI AND MAZHAR QAYYUM, 1997. Status of intestinal parasitic infections in rural and urban communities of capital territory (Islamabad). (Proc. Pak. Congr. Zool, 17:1997).** **9. MAZHAR QAYYUM AND RIAZ AHMED PAL, 1997. Parasitic infections ewes and lambs in relation to season of lambing. (Proc. Pak. Congr. Zool, 17:1997).** **10. RIAZ AHMED PAL AND MAZHAR QAYYUM, 1997. Research on nematode parasites in salt-range sheep with special reference to seasonal variations in worm egg out-puts. (Proc. Pak. Congr. Zool, 17:1997).** **11. MAZHAR QAYYUM AND RIAZ AHMED PAL, 1999. Epidemiological studies on gastrointestinal nematode parasites of sheep infection patterns on sub-tropical contaminated pastures. (Proc. Pak. Congr. Zool, 58-59:1999).** **12. M.ASIF GONDAL AND MAZHAR QAYYUM, 1999. Morphometeric measurements of *Oesophagostomum radiatum* in large ruminants of Rawalpindi division.(Proc. Pak. Congr. Zool, 57:1999).** **13. NUSRAT SABA, MAZHAR QAYYUM AND RIAZ AHMAD PAL, 1999. Distribution of infective stages of nematodes larvae on the pasture of Fateh Jang area, Rawalpindi.(Proc. Pak. Congr. Zool, 56:1999).** **14. SADIA AKHTAR, FAZLE-I-SUBHAN, FAHEEM TAHIR AND MAZHAR QAYYUM, 1999. Prolactin levels in amenoric patients. (Proc. Pak. Congr. Zool, 186-187: 1999).** **15. RIAZ AHMED PAL AND MAZHAR QAYYUM, 1999. Effects of temperature and humidity on survival of free-living stages of *Haemonchus contortus*. (Proc. Pak.**

Congr. Zool, 188-189: 1999).

16. RUBINA KAUSAR, NOOR-US-SABA, MAZHAR QAYYUM, AZRA KHANUM AND ALI ABBAS QAZILBASH, 2001. Antibiotic sensitivity patterns of *Streptococcus* species isolated from clinical samples reported at NIH, Islamabad. Proc.Pak. Congr. ZOOL. 20:2001.

17. SHAHZADA KHURRUM, SHAUFTA HUSSAIN, ANWAR-UL-HAQ, AZRA KHANUM, GHAZALA KAUKAB, MAZHAR QAYYUM AND ALI ABBAS QAZILBASH, 2001. Prevalence of hepatitis B and its correlation to various factors in-patients reported at PIMS, Islamabad. Proc.Pak. Congr. ZOOL, 21:2001.

18. MUSSARAT YASMEEN. NOOR-US-SABA, MAZHAR QAYYUM, AZRA KHANUM AND ALI ABBAS QAZILBASH, 2001. Antibiotic semsitivity patterns of *Staphylococcus aureus* isolated from clinical samples reported at NIH, Islamabad. Proc.Pak. Conge. ZOOL, 24:2001.

19. SOMIA RAZA, AMJAD RASOOL, AZRA KHANUM, GHAZALA KAUKAB, MAZHAR QAYYUM AND ALI ABBAS QAZILBASH, 2001. Incidence of chronic leukemia in adults with respect of age, sex and hematological parameters. Proc. Pak. Congr. ZOOL, 24:2001.

20. NAFFESA QUDSIA HANIF, SHAGIFTA HUSSAIN, AZRA KHANUM, GHAZALA KAUKAB, MAZHAR QAYYUM AND ALI ABBAS QAZILBASH, 2001. prevalence of hepatitis B virus in children with respect to age, sex, socio-economic status and elevated hepatic enzyme levels. Proc. Pk. Congr. ZOOL, 24:2001.

21. SUBUL KHALID, NADEEM HAIDER, SHEHLA BAIG, AZRA KHNAUM, GHAZALA KAUKAB, MAZHAR QAYYUM AND ALI ABBAS QAZILBASH, 2001. Incidence of meningitis among children of different age group reported at PIMS, Islamabad. Proc. Pak. Congr. ZOOL, 25:2001.

22. SADAF RASHEED, AMJAD RASOOL, AZRA KHANUM, GHAZALA KAUKAB, MAZHAR QAYYUM AND ALI ABBAS QAZILBASH, 2001. A clinico-pathological study of Hodgkin's and non-Hodgkin's lymphoma cases reported at PIMS, Islambad. Proc. Pak. Congr. ZOOL, 26:2001.

23. SABEEN AZIZ, SHEHLA BAIG, AZRA KHANUM, GHAZALA KAUKAB, MAZHAR QAYYUM AND ALI ABBAS QAZILBASH, 2001. Factors contributing towards the neonatal jaundice in children reported at PIMS, Islamabad. Proc. Pak. Congr. ZOOL, 26:2001.

24. MUHAMMAD ASAD GHUFRAN, FAKHAR ABBAS, M. ASHRAF AND MAZHAR QAYYUM, 2001. Prevalence and morphometerical measurements of *Haemonchus contortus* in goats and sheep of suburbs of Rawalpindi. Proc. Pak. Congr. ZOOL, 94:2001.

Name	**Dr. Shamim Akhter**
Personal	**Date of Birth:** 13-06-1964 **Identity Card No.:** 33105-2975391-0 **Marital Status:** Married **Permanent Address:** House # 4/18: Poultry Research Institute, Rawalpindi, Pakistan **Mobile:** 0333-5206056 sashraf1993@yahoo.com **Domicile:** Khushab **Religion:** Islam
Experience	**Assistant Professor** **Eight year and nine months** **(Teaching & Research)** **Appointed as Lecturer on 11-04-1998** **Appointed as Astt. Professor on 26-01-2004** **At Department of Zoology,University of Arid Agriculture Rawalpindi.**
Honor and Awards	1. **Merit Scholarship awarded by Board of Intermediate and Secondary Education Sargodha.** 2. **Merit Research Scholarship for M.Phil. awarded by University Grant Commission, Islamabad.**

Gradute students	1. **Influence of phytase enzyme on growth performance, blood phosphorus and bone mineralization in broiler chicks. M.Sc. Thesis. University of Arid Agriculture Rawalpindi. 2002.** 2. **To Study the recovery of ocytes from buffalo and cattle ovaries during different seasons, their invitro maturatin and vitrification M.Sc. University of Arid Agriculture, Rawalpindi 2003.** 3. **Determining the presence of Malarial Parasite by using Immuno chromatographic technique (ICT) and peripheral film (P/F) in the suspected patients of Rawalpindi – Islamabad area. M.Sc. University of Arid Agriculture, Rawalpindi 2003.** 4. **Growth and reproduction of earthworm (*Eisenia fetida*) in different organic media. M.Sc. University of Arid Agriculture, Rawalpindi 2003.** 5. **Field Evaluation of cereal grain bait materials against the lesser Bandicoot Rat (*Bandicota Bengalensis*) in wheat crop. M.Sc. University of Arid Agriculture, Rawalpindi 2003.** 6. **Effect of ascorbic acid on egg characteristics of desi and fayoumi birds.** 7. **Effect of sodium bicarbonate and ammonium chloride on performance and blood acid base balance of broilers reared under high temperature.** 8. **Effect of varying dietary proteins and energy levels on the productive performance of broilers.** 9. **Optimum proportion of cow manure and soil required for growth and reproduction of *Eisenia fetida.*** 10. **Effect of different sodium levels on the growth performance of broiler chicks.** 11. **Effect of different energy values of old rice polish on the growth performance of broiler chicks.** 12. **Skeletal deformities of Mahseer (*Tor putitora*)in Dobhi Ghat Pond stream of Punja Sahib, Hassan Abdal.** 13. **Effect of GnRH and improved diet on serum testosterone level and**

	scrotal circumference of senile buffalo bulls. **14. The study of effect of improved diet and GnRH on semen characteristics of senile buffalo bulls.** **15. Concentration of luteinizing hormone and testosterone circulating throughout puberty: A cross-sectional study in normal healthy boys.** **16. A cross-sectional assessment of circulating concentration of leptin and physical changes during normal puberty in boys.** **17. A cross–sectional study of the relationship of plasma growth hormone concentration to the pubertal growth spurt in normal healthy boys.** **18. Effect of cobalt and mercury ions, on early embryonic development of (*Labeo rohita)*** **19. Comparative egg characteristics and proximate composition of rural verses commercial breeds of chicken** **20. Effect of pesticides on choline esterase activity of brain in passerine birds.** **11. M EMBER SUPERVISORY COMMITTEES.** **1. Endocrine disruption by pollutants of Korang River in Fish. M.Sc Thesis University of Arid Agriculture, Rawalpindi, 2003.** **2. Moleiular Characterization of *Pasteurella multocida* Field isolates by DNA fingerprinting. M.Sc Thesis University of Arid Agriculture, Rawalpindi, 2003.** **3. Study of antidiabetic activity of carelluma tuberculeta in alloxan induced diebetic rebbits. M.Sc Thesis University of Arid Agriculture, Rawalpindi, 2003.** **4. Effect of ascorbic acid on the productive performance of desi and fayoumi birds.** **5. Efficacy of experimentally developed live Angara disease vaccine and routes of vaccination in broiler chicks.** **6. Effect of different dietary electrolyte balance on broilers reared during summer season.**

	7. **Soil Macrofauna variation in Margalla Hill, National Park, Pakistan.** 8. **Field evaluation of FAMACHA©, after using different anthelmintic in hairy goats (Jattal) reared at different small ruminant's farms.** 9. **Detection of multiple anthelmintic resistance against naturally acquired nematodes in Awassi sheep reared at Kharimurat Livestock Production Unit, Pakistan.**

Research interests	**Reproductive Physiology**

Publications	1. **A.N., Sheri, N. Ahmad, 1988 M. Afzal, Z. Hussain and Shamim Akhtar. Effect of pond fertilization by cow manure on the growth performance of major carps. Biologia, Vol. 34, No. 2.** 2. **Mussaddeq, Y., I. Begum and Shamim Akhter. 2000. Activity of Aflatoxins Adsorbents in Poultry Feed. Pak. J. Bio. Sci., 3 (10): 1697-1699.** 3. **Mussaddeq, Y; A. Batool. Shamim Akhtar and A. Rehman. 2002. Effect of different palns of nutrition on immune response against new castle disease. Pak. J. Bio. Sci., 2(4): 214-216.** 4. **Mussaddeq, Y., S. Daud and Shamim Akhtar. 2002. A study on the laying performance of cross (FAY X RIR) chicken under different plans of feeding. Intt. J. Poult. Sci., 1(6): 188–192.** 5. **Rafiq, M., Shamim Akhtar and M. H. K. Niazi. 2003. Fish Fauna of Jinnah Barrage and Adjoining Areas. Pak. J. Zool., 35 (2), 95-98.** 6. **Bhatti, B. M., F. Hafeez., S. Bano., T. Talat., R. Sardar and Shamim Akhtar. 2003. Effect of Freezing on Moisture, Protein Fat and Ash Cotents of Broiler Meat. Pak. J. Vet. Res., 1(1): 12-14.** 7. **Zafar, M., Y. Mussaddaq., Shamim Akhtar and A. Sultan. 2003. Weight–length and Condition Factor Relationship of Thaila, *Catla Catla* from Rawal Dam Islamabad. Pakistan. *Pak. J. Biol. Sci.,* 6(17): 1532-1534.** 8. **Rehana A., R. Siddique., M. Afzal and Shamim Akhter. 2004. Inter and Intra-Specific Variation in SDS-PAGE of total Seed Protein in Rice (*Oryza sativa* L.) Germplasm. Pak. J. Biol. Sci 7(2): 139-143.** 9. **Hussain, R., N. Ullah and Shamim Akhtar 2005, Invitro naturation and vitrification of cattle and buffalo oocytes in different media. Int. J. Biol. Biotech; 2: 110-114.** 10. **Hussain, R., N. Ullah and Shamim Akhtar 2005, Effect of season on average number of oocytes in cattle and buffalo ovaries during different seasons. Pak. J. Zool. (PJZ-276-2005).**

	11. **Siddique, J., Khan, A. A., I. Hussain and Shamim Akhter. 2005. Growth and reproduction of earth (Eisenia fetida) in different organic media. Pak. J. Zool., 37 (3): 211-214.** 12. **S. Nusrat., B. M. Bhatti., Shamim Akhtar., Y. Mussaddeq and K. Ahmad. 2005. Isolation and antibiogram of Escherichia Coli from indigenous chiks. Pak. J. Vet. Res., 2 (1): 8-13.** 13. **Akhter Shamim, M. S. Ansari, S. M. H. Andrabi, N. Ullah and M. Qayyum. 2007. Effect of antibiotics in extender on bacterial control and spermatozoal quality of cooled buffalo (*Bubalus bubalis*) bull semen. Reproduction in Domestic Animals, doi: 10.1111/j.1439-0531.2007.00890.x** 14. **S. M. H. Andrabi, M. S. Ansari, N. Ullah, M. Anwar, A. Mehmood, Shamim Akhter. 2007. Duck egg yolk in extender improves the freezability of buffalo (*Bubalus bubalis*) bull spermatozoa. Animal Reproduction Science (accepted)** 15. **M. Sajjad, S. Ali, N. Ullah, M. Anwar, Shamim Akhter and S. M. H. Andrabi. 2007. Blood serum testosterone level, its relationship with scrotal circumference and semen characteristics in Nili-Ravi buffalo bulls. Pakistan Veterinary Journal, 27 (2): 63-66.** 16. **Akhter Shamim, M. Sajjad, S. M. H. Andrabi, N. Ullah and M. Qayyum. 2007. Effect of antibiotics in extender on fertility of liquid buffalo bull semen. Pakistan Veterinary Journal 27 (1): 13-16.** 17. **M. S. Ansari, S. M. H. Andrabi and Shamim Akhter. 2007. Diversity of rumen microflora: Application to improve post-ingestion forage quality. Biologia (submitted: No. 3/07-B)** 18. **M. Sajjad, N. Ullah and Shamim Akhter. 2007. Gonadotropin releasing hormone (GnRH) treatment decreases sperm abnormalities in Nili-Ravi buffalo bulls. Pakistan Veterinary Journal (submitted)** 19. **M. Sajjad, Bushra, Shamim Akhter and N. Ullah. 2007. Effect**

	of gonadotropin releasing hormone (GnRH) on semen characteristics in Nili-Ravi buffalo bulls. Pakistan Veterinary Journal (submitted) 20. **S. Ali, M. Sajjad, Bushra, Shamim Akhter, N. Ullah. 2007. Effect of gonadotropin releasing hormone (GnRH) on blood serum testosterone and scrotal circumference in Nili-Ravi buffalo bulls. International Journal of Agriculture and Biology (submitted)** 21. **Shamim Akhter, M. Sajjad, S. M. H. Andrabi and N. Ullah. 2007. Comparison of milk based extenders for preservation of buffalo bull (*bubalus bubalis*) spermatozoa at 5 °C. Pakistan Veterinary Journal (submitted)** 22. **S. Ali, M. Sajjad, Shamim Akhter, N. Ullah. 2007. Effect of feeding on semen characteristics, scrotal circumference and blood serum testosterone in Nili-Ravi buffalo bulls. International Journal Agriculture and Biology (submitted)**
Research Grants and Contracts	**1. Designation: Principle investigator** **Project title: Isolation/identification of pathogenic bacteria from buffalo bull semen: Development of high efficiency antibiotic combination to improve fertility rate** **Total Funds: 4.955 million Rs.** **Funding Agency: Higher Education Commission (HEC) of Pakistan** **2. Designation: Principle investigator** **Project title: Preservation of bovine epididymal spermatozoa** **Total Funds: 98 thousand Rs.** **Funding Agency: University of Arid Agriculture, Rawalpindi** **3. Designation: Principle investigator** **Project title: Identification of chemically defined extenders for cryopreservation of buffalo bull spermatozoa** **Total Funds: 1.330 million Rs.** **Funding Agency: Pakistan Science Foundation**

Selected Professional Presentations	1. **Atiq, N; Shamim Akhtar; S.M.H. Andrabi and N. Ullah. 2003.Validaton of photometer for sperm concentration measurement with neubauer hemocytometer and makler counting chamber in bovines. 23rd Pakistan Congress of Zoology.** 2. **Shahzadi, N; Shamim Akhtar; Y. Mussaddeq; B. M. Bhatti and K. Ahmad. 2003. Isolation and antibiogram of *Escherichia coli* from young desi (indigenous) chicks, their feed and water. 23rd Pakistan Congress of Zoology.** 3. **Sultana, A; A. Rehman and Shamim Akhtar. 2003. Effect of different proteins and energy levels of rations on the immune response against the Newcastle disease in broiler. 23rd Pakistan Congress of Zoology.** 4. **Zahra, A; Shamim Akhter and S. Hassan. 2003. Evaluation of feed ingredients as a source of salmonella infection in poultry. 23rd Pakistan Congress of Zoology.** 5. **Zaiba, R; Shamim Akhter and A. Rehman. 2003 Effect of different energy levels of ration on the performance of broilers. 23rd Pakistan Congress of Zoology.** 6. **Munazza Z; Y. Mussadddeq, Shamim Akhtar and M. Asghar 2004. Monitoring of Toxicheavy Metals (Lead and Cadmium) in Sugar of Rawalpindi and Islamabad. 24th Pakistan Congress of Zoology.** 7. **Rashad H; Namatullah and Shamim Akhtar 2004. The Recovery, in Vitro Maturation and Vitrification of Cattle and Buffaloe oocytes. 24th Pakistan Congress of Zoology.** 8. **Khushbakht Y; Mukhtar A. Nadeem, Tanveer A. Zahid M. and Shamim Akhtar 2004. Effect of Phytase Enzyme (Biofeed) on Phosphorus Bio-availability and Growth Performance in Broiler Chicks. 24th Pakistan Congress of Zoology.** 9. **Zahid M; Khushbakht Y. M. Yasin A, Shaista K and Shamim Akhtar 2004. Influence of Protexin ® (A Multistrain Probiotic) on Performance of Layers. 24th Pakistan Congress of Zoology.**

	10. **Jawria S; Iftikhar H. Aamir A. K and Shamim Akhtar 2004. Growth and Reproduction of Earthworm (Eisenia fetida) in Different Organic Media. 24th Pakistan Congress of Zoology.** 11. **Muhammad Sajjad, Nematullah, Muhammad Anwar, Shahzad Ali and Shamim Akhtar 2005. Effect of Gonadotrophin Releasing Hormone (GnRH) and Improved Feeding on Semen Characteristics in Senile Buffalo Bulls. 25th Pakistan Congress of Zoology.** 12. **Saima Jabeen, Shamim Akhtar and Mazhar Qayyum 2005. Seasonal Malarial Infection in Twin-city of Rawalpindi – Islamabad. 25th Pakistan Congress of Zoology.** 13. **Naseer Ahmed, Amina Zubari and Shamim Akhtar 2005. The Effect of Mercury and Cobalt ions on Early Embryonic Development of Fresh Water Teleost Rohu (*Labeo Rohita*). 25th Pakistan Congress of Zoology.** 14. **Zahid Majeed, Amina Zubari and Shamim Akhtar 2005. Deformity of Vertebral Column in Mahseer (*Tor Putitora*). 25th Pakistan Congress of Zoology.** 15. **Malik Ghulam Sarwar, Mukhtar Ahmed Nadeem and Shamim Akhtar 2005. Performance of Briolers Fed on Different Dietary Energy and Protein Levels. 25th Pakistan Congress of Zoology.** 16. **Malik Ghulam Sarwar, Mukhtar Ahmed Nadeem and Shamim Akhtar 2005. Effect of Different Energy and Protein Levels on Quality and Quantity of Broiler's Meat. 25th Pakistan Congress of Zoology.** 17. **Muhammad Sajjad, Nematullah, Muhammad Anwar, Shahzad Ali and Shamim Akhtar 2006. Effect of Gonadotropin Releasing Hormone (GNRH) and Diet on Sperm Morphology of Senile Buffalo Bulls. 26th Pakistan Congress of Zoology.** 18. **Muhammad Sajjad, Shahzad Ali, Nematullah, Shamim Akhtar, Muhammad Anwar, S.M.H. Andrabi and Mazhar Qayyum 2006.**

	Relationship Between testosterone Level in Blood Plasma and Semen Out Put of Senile Buffalo Bulls. 26th Pakistan Congress of Zoology. 19 **Shamim Akhtar, Nematullah, S.M.H. Andrabi, Rashad Hussain, Muhammad Sajjad, Muhammad Anwar and Mazhar Qayyum 2006. Comparison of Milk Based Extenders for Preservation of Buffalo Bull (*Bubalus Bubalis*) Spermatozoa at 5°C. 26th Pakistan Congress of Zoology.** 20. **Mubarra Qalsoom, Rashid Hussain, Mazhar Qayyum and Shamim Akhtar 2006. comparison of Some Hematological Parameters of Broiler and Desi Breeds of Poultry. 26th Pakistan Congress of Zoology.** 21. **Shazia Kausar, Rashid Hussain, Mazhar Qayyum and Shamim Akhtar 2006. Correlation Between Adrenal Gland and total Body Mass of House Rat, *Rattus Rattus*. 26th Pakistan Congress of Zoology.** 22. **Samreen Aqil, Rashid Hussain, Mazhar Qayyum and Shamim Akhtar 2006. Some Observatins on Serum Chemistry of Native and Exotic Poultry Breeds. 26th Pakistan Congress of Zoology.** 23. **Amna Noreen, Rashid Hussain, Mazhar Qayyum and Shamim Akhtar 2006. Morphometric Variations in Shape and Size of Skull of House Rat, *Rattus Rattus*. 26th Pakistan Congress of Zoology.**

Name	**Muhammad Sajid Nadeem**
Personal	**Date of birth: 04-04-1970** **Domicile: Bahawalnagar (Punjab)** **Postal Address: Zoology Department University of Arid Agriculture, Rawalpindi** **Pakistan** **Permanent Address: Chak No. 169/M P.O. Dahranwala Tehsil Chishitian Distt. Bahawalnagar Punjab, Pakistan (063-2440214)** **Cell: 0300-8539455** **E-mail: sajidnm@hotmail.com**
Experience	**Assistant Professor, Zoology Department, University of Arid Agriculture, Rawalpindi.** **01 Feb. 2006-todate.** **Teaching Experience: Assistant Professor Hazara University, Mansehra** **10 February 2005 – 31 January 2006**
Memberships	• **Zoological society of Pakistan** • **Species specialist group of IUCN**
Service Activities	• **Member admission committee** • **Member Faculty Board (Faculty of Forestry, Range Management and Wildlife management; Faculty of Sciences)** • **Routine classes and departmental work**
Graduate students	**NIL**
Research interests	**Wildlife/Ecology**

Publications	1) **Sheikh, K. M; Nadeem, M. S. and Gishkori, M. H. 1995. Marbled Teal, study at the Rangla Complex Pakistan. *Threatened Waterfowl Research Group (TWRG) Newsletter* No. 7. May 1995. pp 13-15** 2) **Maan, M. A; Chaudhry, A. A. and Nadeem, M. S. 2003. Wildlife Diversity in Lal Suhanara National Park, Bahawalpur, Pakistan. *Tiger Paper*. Vol. 30: No. 3 Jul.-Sept. 2003, pp 4-10.** 3) **Nadeem, M. S; Asif, M. and Rashid, H. 2003. Survival ratio of released Houbara Bustard from Houbara Research and Rehabilitation Center (Salluwali) Rahim Yar Khan, Punjab, Pakistan. *Berkut* (Ukrainian Ornithological Journal), Vol. 12 (1-2). pp 83-92.** 4) **Nadeem, M. S; Kamal, S; Asif, M. and Rashid, H. 2003. Morphometric Variations of Houbara Bustard. *Berkut* (Ukrainian Ornithological Journal), Vol. 12 (1-2). pp 161-163.** 5) **Nadeem, M. S. Asif, M. and Maan, M. A. 2004. Estimation of the Punjab (Pakistan) wintering population of the Houbara Bustard *Chlamydotis macqueenii. Acta Ornithologica* Vol.39, No. 1. pp 75-78.** 6) **Mahmood, T; Ahmed, M. M. and Nadeem, M. S; 2004. Profile of Gonadal Hormones in the male and female Houbara Bustard during the year. *Berkut* (Ukrainian Ornithological Journal), Vol. 13 (1). pp 110-114.** 7) **Maan, M. A; Chaudhry, A. A; Nadeem, M. S; and Ibrahim, A. E. 2004. Wildlife Potential in Rawalpindi Districts, Punjab, Pakistan. *Tiger Paper*. Vol. 31: No. 2 April-June. 2004. pp 22-25.** 8) **Nadeem, M. S; Ali, F. and Akhtar, M. S. 2004. Diet of Houbara Bustard *Chlamydotis undulata* in Punjab, Pakistan. *Forktail*. No.20 August, 2004. pp 91-93.** 9) **Nadeem, M. S; Tanvir, A. and Akhtar, M. S. 2004. A study of Parasites of Houbara Bustard in Punjab, Pakistan. *Berkut***

	(Ukrainian Ornithological Journal), Vol. 13 (1). pp 122-126. 10) Nadeem, M. S; Mian, A. A; Rashid, H. and Asif, M. 2004. Habitat, Population, Breeding Activities and Threats to Houbara Bustard *Chlamydotis undulata macqueenii* in Nag Valley (1999-2001) *Berkut* (Ukrainian Ornithological Journal), Vol. 13 (2). pp 244-257. 11) Nadeem, M. S; Mian, A. A; Asif, M; Rashid, H; Akhtar, M. S. and Mujtaba, G. 2004. Houbara Bustard: An Experience of Rearing Chicks in Nag Valley (Balochistan), Pakistan. *Berkut* (Ukrainian Ornithological Journal), Vol. 14 (2). 12) Nadeem. M. S; Maan, A. A; Mahmood, T. and Abbasi, A. I. 2005. Population Estimates of Houbara Bustard *Chlamydotis undulata macqueenii* in Punjab, Pakistan, November 1999. *Ardeola* Vol. 53 (1). pp 163-166. 13) Nadeem. M. S; Maan, A. A; Mahmood, T. and Ikram, R. I. 2005. Houbara Population Estimates in Punjab, Pakistan (November 2000). *Berkut*. Vol. 14 (1). pp 71-75. 14) Nadeem, M. S; Asif, M; Mujtaba, G; and Mahmood, T. 2006. Apparent unrecorded migratory route of Dalmatian Pelican *Pelecanus crispus* in Nag Valley, Pakistan. *Birding ASIA*, pp 73-4. 15) Mujtaba, G. and Nadeem, M. S. 2006. Sex identification in birds based on Polymerase Chain Reaction (PCR) and Polyacrylamide Gel Electrophoresis. *Berkut*, Vol. 15 (1). pp 166-168. 16) Maan, M. A; Chaudhry, A. A; and Nadeem, M. S. 2007. Evaluation of Habitats for Avi-Fauna at Shorkot Plantation (Wildlife Sanctuary), Pakistan. *Tiger Paper*. Vol. 34: No. 2 April-June. 2007. pp 24-28. 17) Nadeem, M. S; Asif, M; Mahmood, T; and Mujtaba, G. 2007. Reappearance of Red-headed Vulture *Sarcogyps calvus* in Tharparker, Southeast Pakistan. *Podoces* 2 (2): 141-162 **National Publications:** 1) Chaudhary, A. A; Akhtar, T. and Nadeem, M. S. 1995. Blue Peafowl

(*Pavo cristatus*) Behaviour and management in Changa Manga Wildlife Sanctuary. *WPA News Pakistan* No. 1 July 1995. pp 1-5.

2) Nadeem. M. S; Chaudhry, A. A. and Akhtar, M. S. 1997. Breeding of Houbara Bustard *Chlamydotis undulata macqueenii* in Nag Valley Kharan, Balochistan Pakistan. *Pakistan Journal of Ornithology*. 1(1-2), pp 59-65.
3) Sheikh, K. M; Mahmood, J. A. and Nadeem, M. S. 1998. Conservation: A must to safeguard the biodiversity of Rangla Wetland Complex. In: *Biodiversity of Pakistan* (eds. S. A. Mufti; Charles A. Wood; S. A. Hasan). 1997. Pakistan Museum of Natural History Islamabad, Florida Museum of Natural History Gainesville.
4) Nadeem, M. S; Chaudhry, A. A. and Akhtar, T. 1998. An Ethological study on Blue Peafowl (*Pavo cristatus*) at Changa Manga Wildlife Sanctuary Pakistan. *Pakistan Journal of Ornithology*, Vol. 2(1-2), pp 25-36.
5) Sheikh, K. M; Khan, A. A. and Nadeem, M. S. 1998. Wise Use: A traditional approach to utilize the resources of Rangla Wetland Complex. *Pakistan Journal of Ornithology*. Vol. 2(1-2), pp 62-75.
6) Nadeem, M. S. 1999. Nag Valley, Breeding Houbara demands urgent conservation. *Natura*, WWF, Vol. 27, Issue 3, pp 13-14.
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8) Maan, M. A; Chaudhry, A. A. and Nadeem, M. S. 1999. Habitat: An important factor in population estimation for Houbara Bustard (*Chlamydotis undulata macqueenii*). *Pakistan Journal of Ornithology* 3(1-2), pp 18-26.
9) Tariq, M; Qureshi, I. Z; Nadeem, M. S; and Khan, M. A. 2008. Hexavalent Chromium Toxicity in Pituitary and Thyroid glands. *P. J. Zoo*l. 40 (2): 91-97.

Research Grants and Contracts	**Project No. 20-1101/R&D/07/570 entitled "Repercussion of depletions in vulture populations on the ecology of Potohar region" awarded on 03.7.2008 by HEC. Amount Rs. 2472480/- in progress.**

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Selected Professional Presentations	**Nil**