Name of Institute: Indus Institute of Sciences, Humanities & Liberal Studies
Name of Faculty: Prof.Ghanshyam Malviya

Course code: UCR0302
Course name: Biostatistics (B.Sc-Clinical Research and Healthcare Management)
Pre-requisites: Role of Statistics in Clinical Medicine.
Credit points: 4
Offered Semester: III

Course Coordinator (weeks 01 - 15)
Full name: Ghanshyam Malviya
Department with siting location: Science & Humanities, 4th Floor Staff Room
Telephone: 9510011918
Email: ghanshyammalviya.gd@indusuni.ac.in
Consultation times:

Course Lecturer (weeks 01 - 15)
Full name:Ghanshyam Malviya
Department with siting location: Science & Humanities, 4th Floor Staff Room
Telephone:9510011918
Email: ghanshyammalviya.gd@indusuni.ac.in
Consultation times:

Students will be contacted throughout the Session via Mail with important information relating to this Course.

Course Objectives
By participating in and understanding all facets of this Course a student will:
- To know importance of Biostatistics.

Course Outcomes (CO)
1. Understand the scope of statistical methods in medicine.
2. Learn the measures of central tendency: Arithmetic mean, median, mode, geometric mean, harmonic mean.
3. Learn the absolute and relative measures of dispersion
4. Learn the Elements of probability
5. Apply the Bayes theorem and applications.
6. Understand the analysis and Interpretation data.

Course Outline
Test of Hypothesis, Study design, Learn the measures of central tendency, Random experiments, sample space, Plan for Data Analysis.

Method of delivery
Unit-1- 1st July to 15th August Online Sessions, Chalk&Talk

Study time
4 hour lectures per week

Blooms Taxonomy and Knowledge retention (For reference)
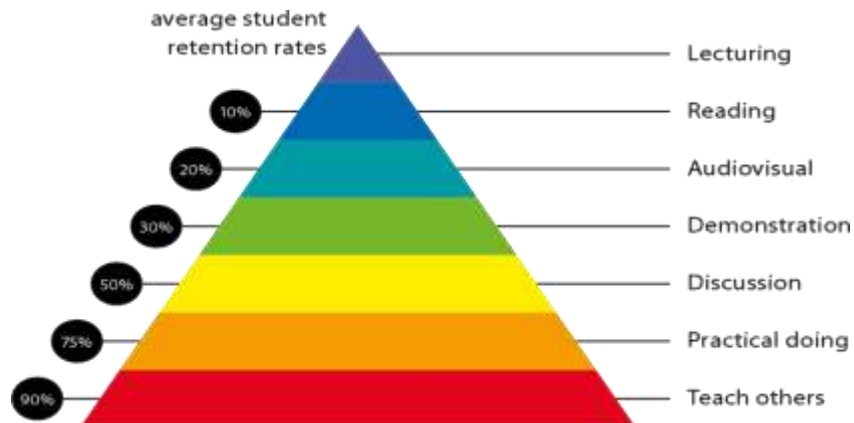(Blooms taxonomy has been given for reference)

Figure 1: Blooms Taxonomy

Figure 2: Knowledge retention

Graduate Qualities and Capabilities covered
(Qualities graduates harness crediting this Course)

General Graduate Qualities	Specific Department of _____Graduate Capabilities
Informed Have a sound knowledge of an area of study or profession and understand its current issues, locally and internationally. Know how to apply this knowledge. Understand how an area of study has developed and how it relates to other areas.	**1 Professional knowledge, grounding & awareness**

Independent learners Engage with new ideas and ways of thinking and critically analyze issues. Seek to extend knowledge through ongoing research, enquiry and reflection. Find and evaluate information, using a variety of sources and technologies. Acknowledge the work and ideas of others.	**2 Information literacy, gathering & processing**
Problem solvers Take on challenges and opportunities. Apply creative, logical and critical thinking skills to respond effectively. Make and implement decisions. Be flexible, thorough, innovative and aim for high standards.	**4 Problem solving skills**
Effective communicators Articulate ideas and convey them effectively using a range of media. Work collaboratively and engage with people in different settings. Recognize how culture can shape communication.	**5 Written communication** **6 Oral communication** **7 Teamwork**
Responsible Understand how decisions can affect others and make ethically informed choices. Appreciate and respect diversity. Act with integrity as part of local, national, global and professional communities.	**10 Sustainability, societal & environmental impact**

Lecture/tutorial times

Lecture	Monday	11:10 – 12:10 pm	Online
Lecture	Tuesday	12:00 – 01:20 pm	Online
Lecture	Thursday	11:10 – 12:10 pm	Online
Lecture	Friday	11:10 – 12:10 pm	Online

Attendance Requirements

The University norms states that it is the responsibility of students to attend all lectures, tutorials, seminars and practical work as stipulated in the Course outline. Minimum attendance requirement as per university norms is compulsory for being eligible for mid and end semester examinations.

Details of referencing system to be used in written work

Text books

Sampling Theory, Narosa. Murthy, M.N. (1967).

Additional Materials

1. Wiley Des Raj and Chandhok (1998).
2. Sampling Theory, Narosa. Murthy, M.N. (1967).
3. Cochran, W.G. (2002). Sampling Techniques.
4. Sampling Theory and Methods. Statistical Publishing Company, Calcutta. Sampath S.(2005). Sampling Theory and Methods.

ASSESSMENT GUIDELINES
Your final course mark will be calculated from the following:

Internal Exam	60%	Objectives (2-5)
	(40 MSE+ 20Attendance +Assignments)	
Final exam (*closed book*)	40%	Objectives (1-5)

SUPPLEMENTARY ASSESSMENT

Students who receive an overall mark less than 40% in mid semester or end semester will be considered for supplementary assessment in the respective components (i.e mid semester or end semester) of semester concerned. Students must make themselves available during the supplementary examination period to take up the respective components (mid semester or end semester) and need to obtain the required minimum 40% marks to clear the concerned components.

Practical Work Report/Laboratory Report:
A report on the practical work is due the subsequent week after completion of the class by each group.

Late Work
Late assignments will not be accepted without supporting documentation. Late submission of the reports will result in a deduction of -% of the maximum mark per calendar day

Format

All assignments must be presented in a neat, legible format with all information sources correctly referenced. **Assignment material handed in throughout the session that is not neat and legible will not be marked and will be returned to the student.**

Retention of Written Work

Written assessment work will be retained by the Course coordinator/lecturer for two weeks after marking to be collected by the students.

University and Faculty Policies

Students should make themselves aware of the University and/or Faculty Policies regarding plagiarism, special consideration, supplementary examinations and other educational issues and student matters.

Plagiarism - Plagiarism is not acceptable and may result in the imposition of severe penalties. Plagiarism is the use of another person's work, or idea, as if it is his or her own - if you have any doubts at all on what constitutes plagiarism, please consult your Course coordinator or lecturer. Plagiarism will be penalized severely.

Do not copy the work of other students.
Do not share your work with other students (except where required for a group activity or assessment)

Course schedule(subject to change)

(Mention quiz, assignment submission, breaksetcas well in the table under the Teaching Learning Activity Column)

Week #	Topic & contents	CO Addressed	Teaching Learning Activity (TLA)
Weeks 1	Test of Hypothesis, Study design,	Understand the scope of statistical methods in medicine.	Online Lecture, Assignment ,Tutorial
Weeks 2	Role of Statistics in Clinical Medicine, Role of Statistics in Preventive Medicine, and Observations in Medicines	Understand the scope of statistical methods in medicine.	Online Lecture, Assignment ,Tutorial
Week 3	Role of Statistics in Clinical Medicine, Role of Statistics in Preventive Medicine, and Observations in Medicines	Understand the scope of statistical methods in medicine.	Online Lecture, Assignment ,Tutorial
Week 4	Arithmetic mean, median, mode.	Learn the measures of central tendency: Arithmetic mean, median, mode, geometric mean, harmonic mean. Learn the measures of central tendency	Online Lecture, Assignment ,Tutorial
Week 5	Geometric mean, harmonic mean and their properties.	: Arithmetic mean, median, mode, geometric mean, harmonic mean.	Online Lecture, Assignment ,Tutorial
Week 6	Absolute and relative measures of dispersion: range, standard deviation	Learn the absolute and relative measures of dispersion	Online Lecture, Assignment ,Tutorial
Week 7	Mean deviation, quartile deviation, coefficient of variation and their properties.	Learn the absolute and relative measures of	Chalk and talk, assignments and unit test

			dispersion	
	Week 8	Mean deviation, quartile deviation, coefficient of variation and their properties.	Learn the absolute and relative measures of dispersion	Chalk and talk, assignments and unit test
	Week 9	Random experiments, sample space, events, related results.	Learn the Elements of probability	Chalk and talk, assignments and unit test
	Week 10	Classical, empirical, and axiomatic approaches to probability. Properties of probability.	Learn the Elements of probability	Chalk and talk, assignments and unit test
	Week 11	Illustrations and applications. Addition thoerem. Conditional probability, independence of events. Law of total probability. Bayes theorem and	Learn the Elements of probability, Learn the Elements of probability	Chalk and talk, assignments and unit test
	Week 12	Plan for Data Analysis: Quantitative and Qualitative,	Understand the analysis and Interpretation data.	Chalk and talk, assignments and unit test
	Week 13	Preparing Data for Computer Analysis and Presentation	Understand the analysis and Interpretation data.	Chalk and talk, assignments and unit test
	Week 14	Statistical Analysis, Interpretation of Data Conclusion and Generalizations, Summary and Discussion	Understand the analysis and Interpretation data.	Chalk and talk, assignments and unit test
	Week 15	Statistical Analysis, Interpretation of Data Conclusion and Generalizations, Summary and Discussion	Understand the analysis and Interpretation data.	Chalk and talk, assignments and unit test