

## Course Outline

|   |                                 |  |
|---|---------------------------------|--|
| <b>Course Name:</b> Statistical Methods   |                                 |  |
| <b>Course Code:</b><br>Stat 101/ Math 107   | <b>Course Type:</b><br>Elective | <b>Course Credits:</b> 3   |
| <b>Class Timings:</b><br>08:00-08:50 a.m.   | <b>Section:</b> A               | <b>Student Meeting Hours/ Office Hours:</b><br>MTWRF: 09.00 a.m.-10.00 a.m.. |
| <b>Instructor Name:</b> Dr. Iram Saleem, Assistant Professor, Department of Statistics  |                                 |  |
| <b>A Note from the Instructor:</b> <ul style="list-style-type: none"><li>• Lectures will be delivered in class face to face</li><li>• Lecture and reading Material will be uploaded on Moodle</li><li>• Quizzes will be performed during class time.</li><li>• Assignment documents will be uploaded on Moodle and their submissions will be considered as in hard copy during class timings</li><li>• For all assessments, dates will be announced in classes.</li></ul> |                                 |  |
| <b>Instructor Contact Details</b><br><i>Email:</i> <a href="mailto:iramsaleem@fccollege.edu.pk">iramsaleem@fccollege.edu.pk</a><br><i>Office:</i> S-045<br><i>Office Hours:</i> 09.00 a.m.-10.00 a.m..<br><i>Guidelines for contacting the instructor:</i> Students can contact me during office hours or make an appointment via email during weekdays and wait until I respond.   |                                 |  |
| <b>Course Description:</b><br>Pre-requisites if any: N/A<br>Mode of Instruction: In-class Lecture<br>[If applicable] Mode of peer-to-peer contact among students: online discussion forums  |                                 |  |
| <b>Technology Requirements:</b> <ul style="list-style-type: none"><li>• Students are required to have a computer/laptop/smartphone and calculator.</li><li>• During exams scientific calculator is mandatory and smartphones are not allowed.</li></ul> <i>Main Mode of Instruction:</i> In-class lectures, reading material, assignment documents will be uploaded on Moodle   |                                 |  |

**Course Objectives:** This course is intended to provide the student with an understanding of basic Statistical terminology and techniques. It will help students find statistics in real life and how effortlessly they can learn to handle statistical data, its types, graphs, and use of statistical formulas and bringing out a clear solution and its interpretation for the layman. After successfully completing the course, the student should be able to translate information into data, learn how to summarize and present data, and use them to solve everyday statistical problems.

**Student Learning Outcomes:**

At the end of the course, the student will:

- 1) Identify the types of data and use appropriate methods to collect and summarize data.
- 2) Be able to make a frequency distribution and draw its graphs,
- 3) Distinguish between different scales of measurements.
- 4) Be able to calculate different measures of central tendency and dispersion.
- 5) Analyze data to find moments, skewness and kurtosis and interpret the results.
- 6) Be able to understand basics of probability.

**Course contents, Learning Material & Activities Schedule**

| <b>Week #</b> | <b>Topic/ Title</b>  | <b>Instructional Material</b>  | <b>Assessment</b>  |
|---------------|--|--|--|
| 1.            | Introduction to basic concepts and terminology. Scales of Measurement    | PowerPoint Presentations, worksheet, activities and Reading Material |  |
| 2.            | Data collection, Frequency distribution (Qualitative and discrete data). |  | Quiz #1<br>(Data collection and frequency distribution)                    |
| 3.            | Frequency distribution for Continuous data                               |  |  |
| 4.            | Graphical Presentation   |  | Assignment #1<br>(data, frequency distribution and graphical presentation) |
| 5.            | Introduction to Measures of Central tendency (Arithmetic mean and mode)  |  |  |

|                 |  |  |  |
|-----------------|--|--|--|
| 6.              | Median and quantiles with graphical presentation   | PowerPoint Presentations, worksheet, activities and Reading Material | Quiz #2: (Graphical presentation, arithmetic mean, and mode) |
| 7.              | Geometric mean and Harmonic mean   |  |  |
| 8.              | Introduction to measures of dispersion Absolute and relative measures of dispersion.<br><br>(Range, Quartile Deviation and their coefficients) |  |  |
| <b>MID TERM</b> |  |  |  |
| 9.              | Mean deviation and its coefficient (with mean and median)  | PowerPoint Presentations, worksheet, activities and Reading Material |  |
| 10.             | Standard deviation /variance and coefficient of variation  |  | Quiz #3<br><br>(Measures of dispersion)                      |
| 11.             | Moments: raw moments, moments about mean   |  |  |
| 12.             | Measures of skewness and Kurtosis  |  | Assignment #2<br><br>(Measures of dispersion and moments)    |
| 13.             | Rules of Counting  |  |  |
| 14.             | Introduction to probability, classical approach.   |  | Quiz #4<br><br>(Rules of counting)                           |
| 15.             | Probability Practice   |  |  |

|                   |               |
|-------------------|---------------|
| 16.               | Final Project |
| <b>Final Exam</b> |               |

### Textbooks, Materials, Supplies, and Other Resources

1. Lind, D. A., Marchal, W. G., & Wathen, S. A. (2012). *Statistical techniques in business & economics*. New York, NY: McGraw-Hill/Irwin,
2. Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., & Cochran, J. J. (2016). *Statistics for business & economics*. Nelson Education
3. Prof. Sher Muhammad Ch. And Prof. Dr. Shahid Kamal, Introduction to Statistical Theory Part 1, Ilmi Kitab Khana.
4. Mann, P. S. (2007). *Introductory statistics*. John Wiley & Sons. R.S.N. Pillai and Bavanthi, Statistics theory and Practice, 8<sup>th</sup> Edition.

### Course Requirements:

**Class Participation:** Class attendance; participation in-class activities and discussions

**Assignment 1:** data, frequency distribution, and graphical presentation

**Assignment 2:** Measures of dispersion and moments

**Quiz 1 (marks 10):** Data collection and frequency distribution

**Quiz 2 (marks 10):** Graphical presentation, arithmetic mean, and mode

**Quiz 3 (marks 10):** Measures of dispersion

**Quiz 4 (marks 10):** Rules of counting

**Assigned Readings**

Practice Worksheets/ questions and reading documents

### Grading Legend

Below is the grading legend of FCCU (published in all catalogues and available on the FCCU website) as approved by the Academic Council

| Grades | Quality Points | Numerical Value | Meaning  |
|--------|----------------|-----------------|----------|
| A      | 4.00           | 93-100          | Superior |
| A-     | 3.70           | 90-92           |          |
| B+     | 3.30           | 87-89           | Good     |
| B      | 3.00           | 83-86           |          |
| B-     | 2.70           | 80-82           |          |
| C+     | 2.30           | 77-79           |          |

|    |      |             |                                     |
|----|------|-------------|-------------------------------------|
| C  | 2.00 | 73-76       | Satisfactory                        |
| C- | 1.70 | 70-72       |                                     |
| D+ | 1.30 | 67-69       | Passing                             |
| D  | 1.00 | 60-66       |                                     |
| F  | 0.00 | 59 or below | Failing                             |
| NS | 0.00 | 0.00        | Did not show up in class            |
| W  | -    | -           | Officially Withdrawn                |
| AW | -    | -           | Administrative Withdrawal/Dismissal |
| AU | -    | -           | Audit/Listener Status               |
| I  | -    | -           | Incomplete                          |
| T  | -    | -           | Transferred credit                  |

The entire course is worth 100%, the breakup is as follows (for example):

|                            |             |
|----------------------------|-------------|
| <b>Class Participation</b> | 5%          |
| <b>Assignments:</b>        | 10%         |
| <b>Quizzes:</b>            | 10%         |
| <b>Midterm exam:</b>       | 25%         |
| <b>Final term exam:</b>    | 40%         |
| <b>Final Project</b>       | 10%         |
| <b>TOTAL</b>               | <b>100%</b> |

#### **Missed Assignments/Make-Ups/Extra Credit**

- *NO delayed assignments. There will be 50% deduction of marks for late submission after due date.*
- *NO Make-up mid/final exam*
- *NO retake mid/final exam*

#### **Attendance Policy:**

If a student does not attend a minimum of 70% of total classes, he/she will not be permitted to take the final examination in the course.

#### **Classroom Participation:**

Students must participate in the classroom for class activities and may ask questions related to the lesson taught. Class participation is also included in your grade

#### **Changes to the Syllabus:**

This syllabus was designed to convey course information and requirements as accurately as possible. It is important to note however that it **may** be subject to change during the course depending on the needs of the class and other situational factors. Such changes would be for your benefit and you will be notified of them as soon as possible.

### **Student Support Services**

- Students can contact the [Campus Counseling Center](mailto:ccc@fccollege.edu.pk) at 0331-444-1518 or [ccc@fccollege.edu.pk](mailto:ccc@fccollege.edu.pk).
- [Writing Center](#)
- [Mercy Health Center](#)

### **Other Useful Links:**

- [Sexual Harassment Policy](#)
- [Anti-Corruption Policy](#)
- [Academic integrity](#)
- [Plagiarism Policy](#)
- [Academic Calendar](#)

*I expect that you will strictly follow the core values of FCCU and put your entire efforts to learn as per the course requirements, attend classes, read the textbook(s)/other assigned reading material and do the assignments in the stipulated time period*