UNIVERSITY OF SARGODHA
OFFICE OF THE REGISTRAR
(ACAD BRANCH)

NOTIFICATION

On the recommendations of Academic Council made in its 24th (1/2025) meeting held on 26.08.2025, the Syndicate in its 72nd (4/2025) meeting held on 12.09.2025 has approved the revised curricula of following programs for implementation w.e.f. **Fall 2025.**

I.	Associate Degree in Statistics	(Annex-'A')
II.	BS in Statistics	(Annex-'B')
III.	BS in Statistics (5th Semester Intake)	(Annex-'C')
IV.	M.Phil Statistics	(Annex-'D')
V.	Ph.D in Statistics	(Annex-'E')

(WAQAR AHMAD)
Additional Registrar (General)

No. SU/Acad/25/ 1200

Dated: 06.11.2025

Distribution:

- Chairman, Department of Statistics
- Controller of Examinations
- Director Academics

C.C:

- Dean Faculty of Sciences
- Director, QEC
- Additional Registrar (A & R) *{With the request to forward the notification alongwith curriculum to all Principals of affiliated colleges concerned}*
- Secretary to the Vice-Chancellor
- PA to Registrar
- Notification File

SCHEME OF STUDIES AND OUTLINES

FOR

BS (Associate Degree Program)

UNDERGRADUATE PROGRAM IN STATISTICS

(Semester/Term System)

Session: Fall 2025 – Onward

DEPARTMENT OF STATISTICS

UNIVERSITY OF SARGODHA

1. **Title of Degree Program:** Associate Degree Program (ADP) in Statistics

2. **Introduction and Rationale:**

   The increasing reliance on data across various sectors has elevated the importance of statistical knowledge and skills. From public health and industry to education and policy-making, the ability to understand and analyze data is critical for informed decision-making. There is a growing demand for individuals who can assist in data handling, basic analysis, and interpretation of statistical outputs.

   The Associate Degree Program (ADP) in Statistics, offered by the Department of Statistics, provides foundational training in statistical theory and its practical applications. This two-year program is aligned with the curriculum of the first four semesters of the BS Statistics program and is designed to prepare students for immediate employment or further academic pursuit in statistics and related disciplines.

3. **Program Objectives:**

   The ADP in Statistics aims to:

   1. Impart a solid foundation in basic statistical concepts and methods.
   2. Train students in data collection, summarization, and elementary analysis.
   3. Introduce the use of statistical software for basic data analysis.
   4. Equip students with the skills needed to support data-driven work in business, research, and public sector environments.

4. **Program Learning Outcomes:**

   Upon successful completion of the program, graduates will be able to:

   1. Understand fundamental concepts of probability and statistics.
   2. Conduct basic data collection through surveys or experiments.
   3. Apply elementary statistical techniques for data analysis.
   4. Use statistical tools/software for generating and interpreting results.
   5. Communicate statistical findings in a clear and meaningful way.

5. **Career Opportunities for Graduates:**

   Graduates of the ADP in Statistics will be prepared for entry-level roles in various sectors. Potential career opportunities include:

   - Statistical Assistant
   - Data Entry and Analysis Officer
   - Research Assistant
   - Survey Enumerator
   - Market Research Assistant
   - Quality Control Technician
   - Office Assistant in Statistical or Research Departments

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6. **Program Structure**

Component	**Details**
Program Duration	2 Years (4 Semesters)
Admission Requirements	At least 45% marks in HSSC, Pre-Engineering / Pre-Medical / ICS / FA/ I. Com / D.Com. or A-Level or equivalent or DAE.
Degree Completion Requirements:	71 credit hours
General Education Courses:	35 credit hours (16 Courses)
Major Courses:	30 credit hours (10 courses)
Interdisciplinary Courses:	6 credit hours (2 courses)
Semester Duration:	16-18 weeks for regular semesters (1–2 weeks for examination). 8–9 weeks for summer semesters (1 week for examination).
Course Load (per semester):	15–18 credit hours for regular semesters. Up to 8 credit hours for summer semesters (for remedial/deficiency/failure/repetition courses only).
3 Credit Hours (Theory):	3 classes (1 hour each) OR 2 classes (1.5 hour each) OR 1 class (3 hours) per week throughout the semester.

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7. General Education (GE) Courses

S.N.	Course Code	Course Title	Credit Hours	Prereq.
1	URCG-5120	Exploring Quantitative Skills	3 (3-0)	Nil
2	URCG-5114	Basic Science	3 (2-1)	Nil
3	URCG-5118	Functional English	3 (3-0)	Nil
4	URCG-5123	Application of ICT	3 (2-1)	Nil
5	URCG-5129	Understanding of Holy Quran - I/Fehm-e-Quran - I	1 (0-1)	Nil
6	URCG-5121	Tools for Quantitative Reasoning	3 (3-0)	Nil
7	URCG-5119	Expository Writing	3 (3-0)	Nil
8	URCG-5128	Pakistan Studies	2 (2-0)	Nil
9	URCG-5112	Arts & Humanities	2 (2-0)	Nil
10	URCG-5105	Islamic Studies	2 (2-0)	Nil
11	URCG-5126	Ethics	2 (2-0)	Nil
12	URCG-5130	Understanding of Holy Quran - II/Fehm-e-Quran - II	1 (0-1)	Nil
13	URCG-5122	Ideology & Constitution of Pakistan	2 (2-0)	Nil
14	URCG-5127	Seerat of the Holy Prophet (SAW)	1 (0-1)	Nil
15	URCG-5116	Science of Society-I	2 (2-0)	Nil
16	URCG-5125	Civics & Community Engagement	2 (2-0)	Nil
17	URCG-5124	Entrepreneurship	2 (2-0)	Nil
18	URCG-5131	Ethics-I	1 (1-0)	Nil
19	URCG-5132	Ethics-II	1 (1-0)	Nil

8. List of Interdisciplinary Courses

S.N.	Course Code	Course Title	Credit Hours	Prerequisite
1	MATH-5101	Calculus - I	3 (3-0)	Nil
2	MATH-5102	Calculus - II	3 (3-0)	MATH-5101
3	MATH-5127	Linear Algebra	3 (3-0)	MATH-5102
4	BIOT-6112	Bioinformatics	3 (1-2)	Nil
5	CMPC-5201	Programming Fundamentals	3 (2-1)	Nil
6	CMPC-5203	Database Systems	3 (2-1)	Nil
7	ITDC-5202	Cyber Security	3 (2-1)	Nil

8	AIDC-5101	Artificial Neural Networks & Deep Learning	3 (2-1)	Nil
9	DSDE-6207	Cloud Computing	3 (2-1)	Nil

9. **Major (Statistics) Courses**

S.N.	Course Code	Course Title	Credit Hours	Prerequisite
1	STAT-5101	Introduction to Statistics	3 (3-0)	Nil
2	STAT-5102	Intro to Probability & Distributions	3 (3-0)	Nil
3	STAT-5103	Introduction to Sampling Theory	3 (3-0)	STAT-5101
4	STAT-5104	Basic Statistical Inference	3 (3-0)	STAT-5102
5	STAT-5105	EDA and Visualization	3 (3-0)	STAT-5101
6	STAT-5106	Official Statistics	3 (3-0)	Nil
7	STAT-5107	Intro to Regression and ANOVA	3 (3-0)	STAT-5104
8	STAT-5108	Data Wrangling	3 (3-0)	Nil
9	STAT-5109	Statistical Packages	3 (3-0)	Nil
10	STAT-5110	Non-Parametric Methods	3 (3-0)	Nil

10. **Scheme of Studies**

Semester I					
S.N.	**Course Code**	**Course Title**	**Credit Hours**	**Prereq.**	**Category**
1	STAT-5101	Introduction to Statistics	3 (3-0)	Nil	Major
2	URCG-5120	Exploring Quantitative Skills	3 (3-0)	Nil	GE
3	URCG-5114	Basic Science	3 (2-1)	Nil	GE
4	URCG-5118	Functional English	3 (3-0)	Nil	GE
5	URCG-5123	Application of ICT	3 (2-1)	Nil	GE
6	MATH-5101	Calculus - I	3 (3-0)	Nil	IDS
		Total Credits	**18**		
Semester II					
1	STAT-5102	Intro to Probability & Distributions	3 (3-0)	Nil	Major
2	STAT-5103	Introduction to Sampling Theory	3 (3-0)	STAT-5101	Major
3	MATH-5102	Calculus - II	3 (3-0)	MATH-5101	IDS
4	URCG-5129	Understanding of Holy Quran - I/Fehm-e-Quran - I	1 (0-1)	Nil	GE
5	URCG-5121	Tools for Quantitative Reasoning	3 (3-0)	Nil	GE
6	URCG-5119	Expository Writing	3 (3-0)	Nil	GE
7	URCG-5128	Pakistan Studies	2 (2-0)	Nil	GE

8	URCG-5131	Ethics-I (for non Muslims)	1 (0-1)	Nil	GE
		Total Credits	**18**		
Semester III					
1	STAT-5104	Basic Statistical Inference	3 (3-0)	STAT-5102	Major
2	STAT-5105	EDA and Visualization	3 (3-0)	STAT-5101	Major
3	URCG-5112	Arts & Humanities	2 (2-0)	Nil	GE
4	URCG-5105	Islamic Studies	2 (2-0)	Nil	GE
5	URCG-5126	Ethics (for non Muslims)	2 (2-0)	Nil	GE
6	URCG-5130	Understanding of Holy Quran - II/Fehm-e-Quran - II	1 (0-1)	Nil	GE
7	URCG-5122	Ideology & Constitution of Pakistan	2 (2-0)	Nil	GE
8	STAT-5106	Official Statistics	3 (3-0)	Nil	Major
9	URCG-5127	Seerat of the Holy Prophet (SAW)	1 (0-1)	Nil	GE
10	URCG-5132	Ethics-II (for non Muslims)	1 (0-1)	Nil	GE
		Total Credits	**17**		
Semester IV					
1	STAT-5107	Intro to Regression and ANOVA	3 (3-0)	STAT-5104	Major
2	STAT-5108	Data Wrangling	3 (3-0)	Nil	Major
3	STAT-5109	Statistical Packages	3 (3-0)	Nil	Major
4	STAT-5110	Non-Parametric Methods	3 (3-0)	Nil	Major
5	URCG-5116	Science of Society-I	2 (2-0)	Nil	GE
6	URCG-5125	Civics & Community Engagement	2 (2-0)	Nil	GE
7	URCG-5124	Entrepreneurship	2 (2-0)	Nil	GE
		Total Credits	**18**		

Course Outlines for Major Courses

1. Introduction to Statistics (STAT-5101) 3(3-0)

Course Brief

This foundational course introduces students to the basic principles and applications of statistics. It emphasizes the role of statistics in natural and social sciences, highlighting its importance as a tool for data-driven decision-making. Students will gain hands-on experience in collecting, presenting, analyzing, and interpreting data using descriptive statistical techniques.

Key topics include types of data and variables, levels of measurement, organization and presentation of data, measures of central tendency and variability, and the construction of index numbers.

Course Learning Outcomes

By the end of this course, the students will be able to:

1. Describe statistics as a field of knowledge, including its scope and relevance to other disciplines in the natural and social sciences.
2. Demonstrate preparedness for advanced coursework in the field of statistics.
3. Apply critical thinking to understand data sources, variable types, and levels of measurement.
4. Present, analyze, and interpret descriptive statistics effectively.
5. Construct and interpret index numbers in real-world contexts.

Course Contents

1. Introduction, Importance, and Scope of Statistics
2. Types of Variables and Data
3. Data Sources and Methods of Data Collection
4. Scales of Measurement: Nominal, Ordinal, Interval, and Ratio
5. Classification and Tabulation of Data
6. Presentation of Data:
   - Stem-and-Leaf Diagrams
   - Box-and-Whisker Plots
   - Bar Charts and Histograms: Creation and Interpretation
7. Measures of Central Tendency: Mean, Median, Mode
8. Measures of Dispersion: Range, Variance, Standard Deviation, IQR
9. Moments, Skewness, Kurtosis, and Shape of Distributions
10. Construction and Interpretation of Index Numbers

Recommended Textbooks

1. Clark, G. M., & Cooke, D. (1998). *A Basic Course of Statistics* (4th ed.). London: Arnold.

Suggested Readings

1. Weiss, N. A. (2015). *Introductory Statistics* (10th ed.). London: Pearson.
2. Agresti, A., & Franklin, C. (2017). *Statistics: The Art and Science of Learning from Data* (4th ed.). Boston: Pearson.
3. Moore, D. S., McCabe, G. P., & Craig, B. A. (2016). *Introduction to the Practice of Statistics* (9th ed.). New York: W. H. Freeman.

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2. Introduction to Probability & Probability Distributions (STAT-5102) 3(3-0)

Course Brief

This course provides a foundational understanding of probability theory and probability distributions, enabling students to model uncertainty and variability in real-world phenomena. It covers core principles such as counting methods, probability rules, and conditional probability including Bayes' Theorem. Students will explore both discrete and continuous random variables and learn to work with key probability distributions.

Through a blend of theory and practical examples, this course equips students with the skills to solve applied problems using binomial, Poisson, hypergeometric, and normal distributions—laying a critical foundation for statistical inference and modeling.

Course Learning Outcomes

By the end of the course, students will be able to:

1. Understand fundamental concepts of probability theory, counting methods, and probability rules.
2. Understand and apply conditional probability and Bayes' Theorem.
3. Demonstrate comprehension of discrete and continuous random variables and their characteristics.
4. Apply probability distributions such as binomial, Poisson, hypergeometric, and normal distributions to model real-world scenarios.

Course Contents

1. Introduction to Probability Theory:
   - Sample Spaces, Events, and Probability Axioms
   - Addition and Multiplication Rules
2. Counting Techniques:
   - Basic Principles of Counting
   - Permutations and Combinations
3. Conditional Probability:
   - Concept and Formula
   - Independence of Events
   - Bayes' Theorem and Applications
4. Random Variables:
   - Discrete and Continuous Types
   - Probability Mass and Density Functions
   - Cumulative Distribution Function
5. Expected Value and Variance:
   - Properties and Applications
   - Moment Generating Functions
6. Discrete Probability Distributions:
   - Binomial, Hypergeometric, Poisson
7. Continuous Probability Distributions:
   - Uniform and Normal Distributions

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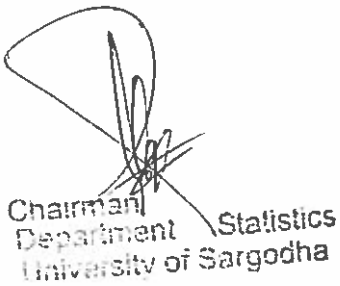
Recommended Textbooks

1. Walpole, R. E., Myers, R. H., Myers, S. L., & Ye, K. (2012). *Probability and Statistics for Engineers and Scientists* (9th ed.). Pearson.
2. Hogg, R. V., & Tanis, E. A. (2010). *Probability and Statistical Inference* (8th ed.). Pearson.

Suggested Readings

1. Ross, S. M. (2014). *Introduction to Probability Models* (11th ed.). Academic Press.
2. Sheldon, R. (2010). *Schaum's Outline of Probability and Statistics* (4th ed.). McGraw-Hill.
3. Spiegel, M. R., Schiller, J., & Srinivasan, R. (2009). *Probability and Statistics* (3rd ed.). McGraw-Hill.
4. Devore, J. L. (2017). *Probability and Statistics for Engineering and the Sciences* (9th ed.). Cengage Learning.



3. Introduction to Sampling Theory (STAT-5103) 3(3-0)

Course Brief

This course introduces students to the foundational principles of sampling theory and its application in the collection and analysis of data. Students will explore various probability and non-probability sampling techniques, the concept of sampling frames, and the importance of representative data in statistical inference. The course also covers computation of sample sizes for different practical needs and an introduction to the sampling distributions of common statistics such as means, variances, and proportions.

The aim is to provide students with the necessary tools to design effective sampling strategies, make informed decisions based on sample data, and understand the variability associated with sampling processes.

Course Learning Outcomes

By the end of the course, students will be able to:

1. Understand basic sampling theory, including the concepts of population, sample, sampling frame, and sampling units.
2. Identify and describe various sampling methods such as simple random sampling, stratified sampling, cluster sampling, and systematic sampling.
3. Calculate appropriate sample sizes for a variety of practical research and survey contexts.
4. Understand the sampling distributions of common statistics such as sample mean, variance, and proportion, and apply this knowledge in data interpretation.

Course Contents

1. Introduction to Sampling:
   - Population vs. Sample
   - Sampling Frame and Sampling Units
2. Types of Sampling Methods:
   - Probability Sampling: Simple Random, Stratified, Systematic, Cluster
   - Non-Probability Sampling: Convenience, Judgmental, Quota, Snowball
3. Sample Size Determination:
   - Estimating Sample Sizes for Means and Proportions
   - Precision, Confidence Levels, and Margin of Error
4. Sampling Distribution:
   - Central Limit Theorem
   - Distribution of Sample Mean, Sample Proportion, and Sample Variance
5. Bias, Accuracy, and Efficiency in Sampling
6. Applications in Survey and Experimental Design

Recommended Textbooks

1. Cochran, W. G. (1977). *Sampling Techniques* (3rd ed.). Wiley.
2. Lohr, S. L. (2019). *Sampling: Design and Analysis* (2nd ed.). Chapman & Hall/CRC.

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Suggested Readings

1. Kish, L. (1965). *Survey Sampling*. Wiley.
2. Thompson, S. K. (2012). *Sampling* (3rd ed.). Wiley.
3. Scheaffer, R. L., Mendenhall, W., & Ott, L. (1996). *Elementary Survey Sampling* (5th ed.). Duxbury Press.

4. Basic Statistical Inference (STAT-5104) 3(3-0)

Course Brief

This course introduces students to the core concepts of statistical inference, focusing on estimation and hypothesis testing. It aims to equip students with the skills required to draw conclusions from sample data and to make data-informed decisions. Through theoretical understanding and practical examples, students will learn how to construct confidence intervals, test hypotheses, and evaluate the performance of statistical estimators. The course emphasizes interpreting results within real-world decision-making contexts, building a strong foundation for more advanced statistical analysis.

Course Learning Outcomes

By the end of the course, students will be able to:

1. Use statistical estimation techniques, including point estimation and interval estimation.
2. Understand and evaluate the properties of point estimators such as unbiasedness, consistency, and efficiency.
3. Perform hypothesis testing for population parameters and interpret statistical results in the context of real-world decision-making.
4. Apply the concepts of statistical inference to practical situations involving real datasets.

Course Contents

1. Introduction to Statistical Inference
2. Point Estimation:
   - Methods of Estimation (Method of Moments, Maximum Likelihood)
   - Properties of Estimators: Unbiasedness, Consistency, Efficiency
3. Interval Estimation:
   - Confidence Intervals for Means, Proportions, and Variances
   - Interpretation and Applications
4. Hypothesis Testing:
   - Null and Alternative Hypotheses
   - Type I and Type II Errors
   - p-values and Test Statistics
   - One-sample and Two-sample Tests for Mean and Proportion
5. Decision Making Using Hypothesis Testing
6. Applications of Inference to Real-World Problems

Recommended Textbooks

1. Hogg, R. V., Tanis, E. A. (2013). *Probability and Statistical Inference* (9th ed.). Pearson.
2. Casella, G., Berger, R. L. (2002). *Statistical Inference* (2nd ed.). Cengage Learning.

Suggested Readings

1. Walpole, R. E., Myers, R. H., Myers, S. L., & Ye, K. (2012). *Probability and Statistics for Engineers and Scientists* (9th ed.). Pearson.
2. Devore, J. L. (2015). *Probability and Statistics for Engineering and the Sciences* (9th ed.). Cengage Learning.
3. Moore, D. S., McCabe, G. P., Craig, B. A. (2016). *Introduction to the Practice of Statistics* (9th ed.). W. H. Freeman.

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5. Exploratory Data Analysis and Visualization (STAT-5105) 3(3-0)

Course Brief

This course focuses on the foundational techniques of exploratory data analysis (EDA) and the principles of effective data visualization. Students will develop the ability to explore, summarize, and present data using various visualization tools and techniques. Through the use of programming languages such as R and Python, and platforms like Power BI, students will learn to communicate statistical insights effectively. The course emphasizes best practices in visual analytics, detection of data patterns and anomalies, and evaluation of visual representations for bias and clarity.

Course Learning Outcomes

By the end of the course, students will be able to:

1. Apply principles of effective data visualization to communicate statistical insights clearly.
2. Design and interpret various types of charts and graphs, including bar charts, scatter plots, histograms, and heatmaps using R, Python, or Power BI.
3. Implement interactive and dynamic visualizations for exploratory data analysis.
4. Analyze and critique data visualizations for accuracy, bias, and misleading representations.
5. Integrate data visualization techniques into real-world statistical reports and presentations.

Course Contents

1. Introduction to Exploratory Data Analysis (EDA)
2. Principles of Effective Data Visualization
3. Summary Statistics and Data Distributions
4. Visual Tools for Categorical and Numerical Data
   - Bar Charts, Histograms, Boxplots, and Scatterplots
   - Line Charts and Heatmaps
5. Multivariate Data Visualization
6. Identifying Outliers and Patterns in Data
7. Interactive and Dynamic Visualizations using R/Python/Power BI
8. Common Pitfalls and Bias in Data Visualization
9. Case Studies in Visual Analytics
10. Integrating Visualizations in Statistical Reports and Presentations

Recommended Textbooks

1. Wickham, H., & Grolemund, G. (2016). *R for Data Science*. O'Reilly Media.
2. Tufte, E. R. (2001). *The Visual Display of Quantitative Information* (2nd ed.). Graphics Press.

Suggested Readings

1. Healy, K. (2018). *Data Visualization: A Practical Introduction*. Princeton University Press.
2. Cairo, A. (2016). *The Truthful Art: Data, Charts, and Maps for Communication*. New Riders.
3. Few, S. (2012). *Show Me the Numbers: Designing Tables and Graphs to Enlighten*. Analytics Press.
4. McKinney, W. (2022). *Python for Data Analysis* (3rd ed.). O'Reilly Media.

6. Official Statistics (STAT-5106) 3(3-0)

Course Brief

This course introduces students to the domain of official statistics and their importance in national planning, administration, and public policy. It covers the organization, collection, and dissemination of demographic and social statistics by official bodies. Students will explore the scope of national statistical systems, understand the standards for official data collection, and become familiar with the key institutions involved in statistical reporting in Pakistan. Emphasis is placed on understanding the reliability, interpretation, and practical use of official datasets from sources like NADRA, PBS, and other government agencies.

Course Learning Outcomes

By the end of the course, students will be able to:

1. Understand the official, demographic, and social statistics.
2. Explain the scope and organizational structure of official statistical systems.
3. Understand the roles of planning and administrative statistics in public decision-making.
4. Describe the structure and functions of national statistical organizations.
5. Utilize and interpret data from statistical sources such as NADRA, PBS, and other national agencies.

Course Contents

1. Introduction to Official Statistics
2. Role and Importance of Official Statistics in Policy and Planning
3. Classification: Demographic, Social, Economic, and Environmental Statistics
4. Organization and Scope of National Statistical Systems
5. Functions and Structure of Statistical Bureaus (PBS, NADRA, etc.)
6. Planning and Administrative Statistics
7. Census and Surveys: Methods and Challenges
8. Use of Official Statistics in Research and Development
9. Standards and Ethics in Official Statistics
10. Case Studies using National and International Statistical Reports

Recommended Textbooks

1. United Nations. (2001). *Principles and Recommendations for Population and Housing Censuses*. UN Publications.
2. Government of Pakistan. (Latest editions). *Pakistan Bureau of Statistics Reports*.

Suggested Readings

1. OECD. (2017). *Handbook on Official Statistics*.
2. United Nations Statistical Commission documents and training manuals.
3. Eurostat and World Bank online resources on National Statistical Systems.

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7. Introduction to Regression and Analysis of Variance (STAT-5107) 3(3-0)

Course Brief

This course introduces students to the foundational techniques of regression analysis and analysis of variance (ANOVA). The primary focus is to understand and model relationships between variables using simple and multiple linear regression models. Students will explore the interpretation and diagnostics of regression outputs, evaluate model fit, and conduct hypothesis testing for regression coefficients. Additionally, the course covers the concepts and applications of one-way and two-way ANOVA to compare group means and identify significant factors influencing outcomes. Emphasis will be placed on the practical application of these methods using real-world data.

Course Learning Outcomes

By the end of the course, students will be able to:

1. Understand relationships between variables through correlation and regression.
2. Understand the theory of linear regression models, including simple and multiple regression.
3. Apply linear regression techniques to model and analyze relationships between dependent and independent variables.
4. Demonstrate the concept of one-way and two-way analysis of variance (ANOVA).
5. Evaluate the goodness-of-fit of regression models using metrics such as R^2, adjusted R^2, and residual analysis.

Course Contents

1. Introduction to Correlation: Types and Interpretation
2. Simple Linear Regression: Model, Estimation, and Inference
3. Assumptions of Linear Regression and Diagnostic Tools
4. Multiple Linear Regression: Model Construction and Interpretation
5. Multicollinearity, Model Selection, and Variable Transformation
6. Introduction to ANOVA: Concepts and Terminology
7. One-Way ANOVA: Assumptions, Calculations, and Interpretation
8. Two-Way ANOVA: Factorial Designs and Interaction Effects
9. Residual Analysis and Diagnostics
10. Model Evaluation: R^2, Adjusted R^2, AIC/BIC

Recommended Textbooks

1. Kutner, M. H., Nachtsheim, C. J., & Neter, J. (2004). *Applied Linear Regression Models.* McGraw-Hill.
2. Montgomery, D. C., & Runger, G. C. (2014). *Applied Statistics and Probability for Engineers* (6th ed.). Wiley.

Suggested Readings

1. Draper, N. R., & Smith, H. (1998). *Applied Regression Analysis* (3rd ed.). Wiley.
2. Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics* (4th ed.). Sage.
3. Fox, J. (2015). *Applied Regression Analysis and Generalized Linear Models* (3rd ed.). Sage.

8. Data Wrangling (STAT-5108) 3(3-0)

Course Brief

This course equips students with practical skills for data wrangling, a crucial step in the data analysis pipeline. Emphasizing real-world datasets, it provides a comprehensive understanding of data acquisition, cleaning, transformation, and preprocessing techniques. Students will explore tools and methods to handle messy, incomplete, or inconsistent data and learn how to transform it into analyzable formats. Emphasis will be placed on building reproducible data workflows that ensure data integrity and readiness for advanced statistical modeling and machine learning applications.

Course Learning Outcomes

By the end of the course, students will be able to:

1. Understand and explain the key concepts, challenges, and importance of data wrangling in the data analysis pipeline.
2. Collect, clean, and preprocess raw data from various sources using appropriate tools.
3. Apply data transformation techniques, including handling missing data, outlier detection, and feature engineering, to improve data quality.
4. Integrate data preprocessing techniques into a reproducible data analysis pipeline, ensuring clean and ready-to-analyze datasets for statistical modeling.

Course Contents

1. Introduction to Data Wrangling and the Data Science Workflow
2. Data Sources and Acquisition (CSVs, APIs, Web Scraping, Databases)
3. Data Cleaning: Removing Duplicates, Handling Missing Values
4. Data Transformation: Data Types, Normalization, Standardization
5. Handling Outliers and Anomalies
6. Feature Engineering and Variable Encoding
7. String and Text Data Processing
8. Merging, Joining, and Reshaping Datasets
9. Creating Reproducible Data Pipelines
10. Introduction to Data Wrangling Tools (R, Python, Excel, SQL)

Recommended Textbooks

1. Wickham, H., & Grolemund, G. (2017). *R for Data Science: Import, Tidy, Transform, Visualize, and Model Data*. O'Reilly Media.
2. VanderPlas, J. (2016). *Python Data Science Handbook*. O'Reilly Media.

Suggested Readings

1. Zumel, N., & Mount, J. (2014). *Practical Data Science with R*. Manning Publications.
2. McKinney, W. (2017). *Python for Data Analysis* (2nd ed.). O'Reilly Media.
3. Dasu, T., & Johnson, T. (2003). *Exploratory Data Mining and Data Cleaning*. Wiley-Interscience.

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9. Statistical Packages (STAT-5109) 3(3-0)

Course Brief

This course introduces students to the practical use of statistical software packages commonly employed in data analysis, including tools such as SPSS, R, Python, and Excel. The course provides hands-on experience in data manipulation, statistical analysis, and visualization. Emphasis is placed on applying statistical techniques such as descriptive statistics, hypothesis testing, and regression analysis through software, interpreting output, and producing professional reports. Students will gain critical software skills necessary for real-world data analysis and research tasks.

Course Learning Outcomes

By the end of the course, students will be able to:

1. Demonstrate proficiency in using statistical software to perform data manipulation, analysis, and visualization tasks.
2. Apply various statistical techniques, such as descriptive statistics, hypothesis testing, and regression analysis, using the software tools.
3. Interpret the output generated by statistical software and communicate results effectively, including the creation of graphs and charts.
4. Troubleshoot common issues in data analysis and refine methods based on software capabilities to achieve accurate results.

Course Contents

1. Introduction to Statistical Software Packages (Excel, SPSS, Minitab)
2. Data Entry, Importing, and Exporting Datasets
3. Data Cleaning and Transformation in Software
4. Descriptive Statistics and Summary Measures
5. Graphical Data Representation: Charts, Histograms, Boxplots
6. Hypothesis Testing: t-tests, Chi-square, ANOVA
7. Correlation and Regression Analysis
8. Data Visualization and Report Generation
9. Scripting and Automation in Statistical Tools
10. Troubleshooting and Debugging Data Analysis Procedures

Recommended Textbooks

1. Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics* (4th ed.). SAGE Publications.
2. Kabacoff, R. (2015). *R in Action: Data Analysis and Graphics with R* (2nd ed.). Manning.

Suggested Readings

1. McKinney, W. (2017). *Python for Data Analysis* (2nd ed.). O'Reilly Media.
2. Diez, D., Barr, C., & Çetinkaya-Rundel, M. (2019). *OpenIntro Statistics.*
3. Dalgaard, P. (2008). *Introductory Statistics with R* (2nd ed.). Springer.

10. Non-Parametric Methods (STAT-5110) 3(3-0)

Course Brief

This course focuses on statistical methods that do not rely on strict distributional assumptions. It is designed to equip students with robust tools for analyzing data when traditional parametric assumptions (such as normality) are violated. Emphasis is placed on understanding the rationale behind non-parametric techniques, applying them to real-world data, and interpreting results. The course covers a variety of non-parametric tests and modern resampling methods like bootstrapping and permutation tests.

Course Learning Outcomes

By the end of the course, students will be able to:

1. Understand the effectiveness and need of non-parametric methods in comparison to parametric techniques.
2. Understand the principles and applications of non-parametric statistical methods, including their advantages.
3. Apply non-parametric tests and resampling techniques on real-world datasets.

Course Contents

1. Introduction to Non-Parametric Statistics and When to Use Them
2. Comparison Between Parametric and Non-Parametric Methods
3. The Sign Test and Wilcoxon Signed-Rank Test
4. Mann-Whitney U Test and Kruskal-Wallis Test
5. Chi-Square Test of Independence and Goodness-of-Fit
6. Spearman's Rank Correlation
7. Run Tests and Median Tests
8. Bootstrap Methods and Confidence Intervals
9. Permutation Tests
10. Real-World Applications and Interpretation of Non-Parametric Tests

Recommended Textbooks

1. Gibbons, J. D., & Chakraborti, S. (2010). *Nonparametric Statistical Inference* (5th ed.). CRC Press.
2. Hollander, M., Wolfe, D. A., & Chicken, E. (2013). *Nonparametric Statistical Methods* (3rd ed.). Wiley.

Suggested Readings

1. Conover, W. J. (1999). *Practical Nonparametric Statistics* (3rd ed.). Wiley.
2. Higgins, J. J. (2004). *Introduction to Modern Nonparametric Statistics*. Cengage Learning.

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Course Outlines for Interdisciplinary Courses

1. Calculus-I (MATH-5101) 3(3-0)

Course Brief

This foundational course in calculus introduces students to the fundamental concepts of limits, continuity, and differentiation. It emphasizes the application of these concepts to solve problems in mathematics, science, and engineering. Through problem-solving and analysis, students will gain critical skills necessary for advanced study in quantitative disciplines.

Course Learning Outcomes

By the end of this course, the students will be able to:

1. Describe the basic concepts of limits, continuity, and differentiation, and explain their significance in mathematical analysis.
2. Solve problems involving the differentiation of algebraic functions, including applications to rates of change and motion.
3. Use derivatives to analyze the behavior of functions, such as identifying critical points, inflection points, and intervals of increase or decrease.
4. Apply calculus concepts to solve real-world problems, such as optimization and related rates, demonstrating critical thinking and analytical reasoning.

Course Contents

1. Review of Functions and Graphs
2. Limits and Continuity
3. The Derivative and Differentiation Rules
4. Applications of Derivatives (Rates of Change, Motion)
5. Curve Sketching and Analysis of Functions
6. Optimization Problems
7. Related Rates
8. Implicit Differentiation
9. Introduction to Exponential and Logarithmic Functions

Recommended Textbooks

1. Stewart, J. (2016). *Calculus: Early Transcendentals* (8th ed.). Cengage Learning.
2. Thomas, G. B., Weir, M. D., & Hass, J. (2018). *Thomas' Calculus* (14th ed.). Pearson.

Suggested Readings

1. Anton, H., Bivens, I., & Davis, S. (2016). *Calculus* (11th ed.). Wiley.
2. Larson, R., & Edwards, B. H. (2016). *Calculus of a Single Variable* (10th ed.). Cengage.
3. Spivak, M. (2008). *Calculus* (4th ed.). Cambridge University Press.

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2. Calculus-II(MATH-5103) 3(3-0)

Course Brief

This continuation of Calculus I deepens students' understanding of integral calculus and introduces them to sequences and series. Emphasis is placed on techniques of integration and their applications in solving real-world problems. The course also explores the convergence of series and their role in approximating functions.

Course Learning Outcomes

By the end of this course, the students will be able to:

1. Evaluate definite and indefinite integrals using various techniques, including substitution, integration by parts, and partial fractions.
2. Analyze the applications of integration to solve problems involving areas, volumes, arc lengths, and work.
3. Investigate sequences and series, including tests for convergence and representations of functions as power series.
4. Apply core concepts of integration to solve real-world problems, such as optimization and related rates, demonstrating critical thinking and analytical reasoning.

Course Contents

1. Techniques of Integration
2. Applications of Integration (Areas, Volumes, Arc Lengths, Work)
3. Improper Integrals
4. Introduction to Differential Equations
5. Sequences and Their Limits
6. Infinite Series and Convergence Tests
7. Power Series and Taylor Series
8. Parametric Equations and Polar Coordinates (if time permits)

Recommended Textbooks

1. Stewart, J. (2016). *Calculus: Early Transcendentals* (8th ed.). Cengage Learning.
2. Thomas, G. B., Weir, M. D., & Hass, J. (2018). *Thomas' Calculus* (14th ed.). Pearson.

Suggested Readings

1. Anton, H., Bivens, I., & Davis, S. (2016). *Calculus* (11th ed.). Wiley.
2. Larson, R., & Edwards, B. H. (2016). *Calculus of a Single Variable* (10th ed.). Cengage.
3. Spivak, M. (2008). *Calculus* (4th ed.). Cambridge University Press.

3. Linear Algebra (MATH-5127) 3(3-0)

Course Brief

This course introduces students to the fundamental principles of linear algebra and its applications in statistics and data science. Topics include matrices, vectors, systems of linear equations, vector spaces, and eigenvalue analysis. The course emphasizes both theoretical understanding and practical problem-solving skills relevant to computational and statistical contexts.

Course Learning Outcomes

By the end of this course, the students will be able to:

1. Explain fundamental concepts of matrices, vectors, and linear systems, and demonstrate their application in statistical problems.
2. Apply matrix operations and transformations to solve systems of linear equations in computational contexts.
3. Analyze the properties of vector spaces and eigenvalues to interpret results for data science and statistical models.

Course Contents

1. Introduction to Matrices and Vectors
2. Matrix Operations and Inverses
3. Systems of Linear Equations and Gaussian Elimination
4. Determinants and Cramer's Rule
5. Vector Spaces, Subspaces, Basis, and Dimension
6. Linear Independence and Rank
7. Linear Transformations and Matrix Representation
8. Eigenvalues and Eigenvectors
9. Diagonalization and Applications in Statistics

Recommended Textbooks

1. Lay, D. C., Lay, S. R., & McDonald, J. J. (2016). *Linear Algebra and Its Applications* (5th ed.). Pearson.
2. Strang, G. (2016). *Introduction to Linear Algebra* (5th ed.). Wellesley-Cambridge Press.

Suggested Readings

1. Anton, H., & Rorres, C. (2013). *Elementary Linear Algebra with Applications* (11th ed.). Wiley.
2. Meyer, C. D. (2000). *Matrix Analysis and Applied Linear Algebra*. SIAM.
3. Friedberg, S. H., Insel, A. J., & Spence, L. E. (2003). *Linear Algebra* (4th ed.). Pearson.

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4. Bioinformatics

3(3-0)

Course Brief

Bioinformatics is defined broadly as the study of the inherent structure of biological information. The objective of the course is to introduce students to the rapidly evolving field of bioinformatics. The main objective is to familiarize students with biological data mining from online databases and the use of various bioinformatics tools for extracting and processing biological data. Upon completing this course, students will gain an understanding of the computational challenges (and their solutions) in analyzing large biological datasets. They will also understand how commonly used bioinformatics tools function, how to apply them effectively, and how to critically evaluate research articles in the field.

Course Learning Outcomes

1. Understand the fundamental concepts and scope of bioinformatics.
2. Retrieve and interpret biological data from public repositories and databases.
3. Perform sequence alignment and analyze structural and functional features of biological molecules.
4. Apply bioinformatics tools for genome annotation, protein modeling, and phylogenetic analysis.
5. Evaluate computational strategies for whole genome sequencing and assembly.

Course Contents

1. Introduction; bio-computing
2. Biological databases - types and retrieval of nucleic acid (or genomic) or protein sequence information
3. Sequence alignment - pairwise, multiple
4. Phylogenetics; in silico identification of protein motifs and domains
5. Structural bioinformatics of proteins and RNAs including protein modeling and prediction of their interactions with other proteins and small molecules
6. Identification of genes and promoter regions within genomes; networks
7. Strategies for whole genome sequencing and assembly

Recommended Databases and Tools

- NCBI, PDB, EcoCyc, DDBJ, SWISS-PROT, TIGR, KEGG
- BioEdit, RepeatMasker, PHRED, PHRAP, BLAST, Prosite/BLOCKS/PFAM
- CLUSTALW, Emotif, RasMol, Oligo, Primer3, Molscript, Treeview, Alscript
- Genetic Analysis Software, Phylip, MEGA 4.0

Recommended Textbooks

- Claverie, J.M., & Notredame, C. (2014). *Bioinformatics for Dummies* (4th Ed.). Wiley Publishing.
- Xiong, J. (2016). *Essential Bioinformatics* (3rd Ed.). Cambridge University Press.

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Suggested Readings

- Mathura, V., & Kangueane, P. (2016). *Bioinformatics: A Concept-Based Introduction*. Springer.
- Mount, D.W. (2001). *Bioinformatics Sequence and Genome Analysis* (4th Ed.). Cold Spring Harbor Laboratory Press.
- Sperschneider, V. (2016). *Bioinformatics: Problem Solving Paradigms*. Springer.

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5. Programming Fundamentals(CMPC-5201) 3(2-1)

Course Brief

This course provides fundamental concepts of programming to freshmen. The course is a prerequisite to many others; therefore, students are strongly advised to thoroughly cover all contents and achieve the course learning outcomes to the fullest extent. While the course may be taught language-independently, the university may choose any modern, market-oriented language for practical/lab sessions.

Course Learning Outcomes

1. Understand basic problem solving steps and logic constructs *(C2: Understand)*
2. Apply basic programming concepts *(C3: Apply)*
3. Design and implement algorithms to solve real-world problems *(C3: Solve)*

Course Contents

The course covers foundational programming concepts beginning with an introduction to problem solving and a brief review of the Von-Neumann architecture. It then explores programming fundamentals including the role of compilers and linkers, and the basics of algorithms. Students will learn about data types, variables, input/output constructs, and various operators (arithmetic, comparison, and logical). Control flow structures such as conditional and repetitive statements are introduced, along with lists, multidimensional lists, and memory organization. Further topics include modular programming, function definition and invocation, stack behavior (rolling and unrolling), string manipulation, pointers/references, and both static and dynamic memory allocation. Finally, the course introduces file input/output operations, equipping students with comprehensive knowledge required for basic software development.

Recommended Textbooks

1. Robert Lafore. *Object Oriented Programming in C++*, latest edition.
2. Tony Gaddis. *Starting Out with Programming Logic and Design*, latest edition.
3. Brian W. Kernighan & Dennis M. Ritchie. *The C Programming Language*, 2nd Edition.
4. Paul Deitel & Harvey Deitel. *C++ How to Program*, latest edition.
5. Jeri R. Hanly & Elliot B. Koffman. *Problem Solving and Program Design in C++*, latest edition.

6. Database Systems (CMPC-5203) 3(2-1)

Course Brief

The course aims to introduce basic database concepts, different data models, data storage and retrieval techniques, and database design methodologies. It places strong emphasis on the relational data model and Database Management System (DBMS) principles, providing students with the practical skills and theoretical foundation necessary to work effectively with modern databases.

Course Learning Outcomes

1. Explain fundamental database concepts *(C2: Explain)*
2. Design conceptual, logical, and physical database schemas using different data models *(C5: Design)*
3. Identify functional dependencies and resolve database anomalies by normalizing database tables *(C2: Identify)*
4. Use Structured Query Language (SQL) for database definition and manipulation in any DBMS *(C4: Use)*

Course Contents

This course begins with an overview of basic database concepts and contrasts the database approach with traditional file-based systems. It introduces database architecture and the three-level schema model, highlighting the concept of data independence. The relational data model is thoroughly explored, covering attributes, schemas, tuples, domains, relation instances, keys, and integrity constraints. Students learn relational algebra operations such as selection, projection, Cartesian product, and various types of joins. The course also covers normalization techniques, functional dependencies, and different normal forms. It provides instruction on the Entity-Relationship (ER) model, including entity sets, attributes, relationships, and ER diagrams. SQL is covered in depth, including joins, subqueries, grouping, and aggregation. Advanced topics such as concurrency control, backup and recovery, indexing techniques, and an introduction to NoSQL systems are also included.

Recommended Textbooks

1. Mark L. Gillenson. *Fundamentals of Database Management Systems*, 3rd Edition, 2023.
2. Thomas Connolly and Carolyn Begg. *Database Systems: A Practical Approach to Design, Implementation, and Management*, 6th Edition, 2019.
3. Hector Garcia-Molina, Jeffrey D. Ullman, and Jennifer Widom. *Database Systems: The Complete Book*, 2nd Edition, 2013.
4. Avi Silberschatz, Henry F. Korth, and S. Sudarshan. *Database System Concepts*, 6th Edition, 2019.

7. Cyber Security (ITDC-5202)

3(2-1)

Course Brief

The Cyber Security course focuses on safeguarding digital systems and data. It introduces students to the fundamentals of cyber threats, encryption, and risk management strategies, and prepares them to defend against cyberattacks while ensuring the security of information assets.

Course Learning Outcomes

1. To be able to identify computer system threats *(C2: Understand)*
2. To be able to identify malware attacks and understand the stages of attack and payloads *(C2: Understand)*
3. Implement various cryptographic techniques and simulate attack scenarios *(C3: Apply)*

Course Contents

The course covers a wide range of cyber security topics, beginning with an introduction to cyber security and networking fundamentals. It explores the cyber threat landscape, key information security principles (Confidentiality, Integrity, Availability), and common terminology. Students will examine attacker profiles, including Advanced Persistent Threats (APT), and types of malware, along with the malware attack lifecycle. The course delves into social engineering tactics, attack payloads, and industrial espionage in cyberspace. Core cryptographic techniques are introduced, followed by discussions on web application security, database security, the cyber kill chain, and issues of privacy and anonymity. Additional modules include network and wireless security, software and mobile device security, cyber terrorism, information warfare, and an introduction to digital forensics and its various categories.

Recommended Textbooks

1. Chuck Easttom. *Computer Security Fundamentals*, 4th Edition or latest.
2. Mark Ciampa. *Security+ Guide to Network Security Fundamentals*, 5th Edition.
3. C.P. Pfleeger. *Security in Computing*, Prentice-Hall, 4th Edition or latest.

8. Artificial Neural Networks & Deep Learning (AIDC-5101) 3(2-3)

Course Brief

This course introduces Artificial Neural Networks (ANNs) and Deep Learning. It begins with the basic architecture of ANNs and how they emulate the human brain using simple mathematical models. Students will learn the essential concepts and learning laws associated with brain-inspired computing, and how to choose activation functions and train networks for classification tasks. The course progresses to advanced deep learning topics, including convolutional and recurrent neural networks, unsupervised deep learning, reinforcement learning, and state-of-the-art models in computer vision and natural language processing.

Course Learning Outcomes

1. Understand the fundamentals of neural networks in AI *(C2: Understand)*
2. Explain how simple ANNs can be designed *(C2: Understand)*
3. Apply ANN for classification problems *(C3: Apply)*
4. Apply deep learning algorithms to real-world problems *(C3: Apply)*
5. Analyze results from deep learning to select appropriate solutions *(C4: Analyze)*

Course Contents

Introduction and history of neural networks; basic architecture of neural networks; perceptron and Adaline (Minimum Error Learning); basics of deep learning; machine learning theory – training and test sets, evaluation metrics; learning algorithms: gradient descent, Hebbian and neo-Hebbian learning, differential Hebbian learning, reinforcement learning; Kohonen self-organizing maps; associative memory and bi-directional associative memory (BAM); Boltzmann machines; backpropagation and feedforward networks; theory of generalization; multi-layer perceptrons; deep convolutional networks and their computational complexity; unsupervised deep learning: autoencoders, deep belief networks, restricted Boltzmann machines; deep recurrent neural networks including BPTT and LSTM; GPU programming for deep learning using CuDNN; generative adversarial networks (GANs); sparse coding and autoencoders; data augmentation techniques; regularization methods including dropout, batch normalization, dropconnect; recent deep learning architectures such as ResNet and GoogleNet.

Recommended Textbooks

1. Chollet, F. *Deep Learning with Python*, Simon and Schuster, 2021.
2. Goodfellow, I., Bengio, Y., & Courville, A. *Deep Learning*, MIT Press, 2016.
3. Graupe, D. *Deep Learning Neural Networks: Design and Case Studies*, World Scientific Publishing, 2016.
4. Anderson, J. A. *An Introduction to Neural Networks*, MIT Press, 1995.
5. Hassoun, M. H. *Fundamentals of Artificial Neural Networks*, MIT Press, 1995.

9. Cloud Computing (DSDE-6207) 3(2-3)

Course Brief

This course introduces students to the foundations and applications of cloud computing. It explores distributed computing techniques, cloud ecosystems, and real-world use cases. Emphasis is placed on cloud services, deployment models, and related tools through hands-on labs and a term project.

Course Learning Outcomes

1. Understand fundamental concepts of distributed computing and their implementation in modern cloud systems *(C1: Knowledge)*
2. Understand the basic principles of cloud deployment and service models *(C2: Understand)*
3. Demonstrate deployment of cloud service models using simulators, VMware, or OpenStack *(C2: Understand)*

Course Contents

The course begins with an overview of distributed computing and the emergence of cloud computing, emphasizing the global nature and reliability of cloud models. Topics include cloud-based service offerings such as Communication-as-a-Service (CaaS), Infrastructure-as-a-Service (IaaS), Monitoring-as-a-Service (MaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). Key areas also include virtualization, security in the cloud, privacy and identity management, cloud federation, and mobile access to cloud services. Students will examine common cloud standards, legal considerations, and challenges faced in cloud environments.

Recommended Textbooks

1. Erl, T. (2023). *Cloud Computing: Concepts, Technology, Security, and Architecture*. Pearson Digital Enterprise Series.
2. Rittinghouse, J. W., & Ransome, J. F. (2010). *Cloud Computing Implementation, Management, and Security*. Taylor and Francis Group.
3. Liu, M.-L. (2004). *Distributed Computing: Principles and Applications*. Pearson.
4. Buyya, R., & Dastjerdi, A. V. (Eds.). *Internet of Things: Principles and Paradigms*. Morgan Kaufmann.
5. `https://arxiv.org/abs/1601.02752`
6. `https://www.vmware.com/pdf/virtualization.pdf`
7. `https://www.vmware.com/pdf/virtualization_considerations.pdf`
8. `https://www.researchgate.net/publication/270581440_Cloud_Federation_characteri` `and_conceptual_model`
9. `https://xmpp.org/`
10. *Architecting the Cloud: Design Decision for Cloud Computing Service Models (SaaS, PaaS and IaaS)*. Wiley India, 2014.

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Course Outlines for General Education Courses

URCG-5112 **Fables, Wisdom Literature, and EPICS** **2(2-0)**

Course Brief

The course will enable students to explore human experiences, cultivate an appreciation of the past, enrich their capacity to participate in the life of their times, and enable an engagement with other cultures and civilizations, both ancient and modern. But independently of any specific application, the study of these subjects teaches understanding and delight in the highest achievements of humanity. The three components of the course, including fables, wisdom literature and epic, will enable the learners to explore and understand the classic tradition in literature. Development of personal virtue, a deep Sufi ethic and an unwavering concern for the permanent over the fleeting and the ephemeral are some of the key themes explored in the contents that will develop an intimate connection between literature and life.

Contents

1. Fables
   a) The Fables of Bidpai
   b) The Lion and the Bull
   c) The Ring-dove
   d) The Owls and the Crows
   e) Selected poem from Bang-i-Dara

2.Gulistan-e- Sa'di
   a) Ten ḥikāyāt from John T. Platts, The Gulistan

3. Epic
   a) THE SHĀHNĀMA OF FIRDAUSI

Recommended Books

1. John T. P. (1876). The Gulistan; or, Rose Garden of Shaikh Muslihu'd- DīnSa'dī of Shīrāz. London: Wm. II. Allen.
2. Chishti, Y.S. (1991). Sharaḥ-ibāng-idarā. Lāhaur: Maktaba-ita'mīr-iinsāniyat

Suggested Readings

1. Thackston, W. (2000). A Millennium of Classical Persian Poetry. Maryland: Ibex Publishers.
2. Wood, R. (2013). Kalila and Dimna: Fables of Conflict and Intrigue. United Kingdom: MedinaPublishing, Limited.

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URCG-5114 **Basic Science** **3(2-1)**

Course Brief

Life, its characteristics, natural science, biology and its branches; Importance of Flora & Fauna in biodiversity; Importance of Natural Compounds in daily life, medicine and human health; Latest developments in natural sciences (Biotechnology); Ecosystem and its components; Environment and its components; Pollutants and their effect on the environment (Greenhouse effect, global warming, acid rains, water pollution and ozone depletions etc.); Introduction to micro-organism and its types (bacteria, fungi, viruses)

Course Contents

1. Life and Its Characteristics: Definition and properties of life, features of living organisms.
2. Natural Science: Overview, significance, interdisciplinary connections.
3. Biology and Its Branches: Study of living organisms, branches like botany, zoology, microbiology, genetics, and ecology.
4. Importance of Flora and Fauna in Biodiversity: Ecological balance, impact on stability and human well-being.
5. Importance of Natural Compounds: Use in medicine, healthcare, and daily living.
6. Latest Developments in Natural Sciences (Biotechnology): Genetic engineering, applications in various fields.
7. Ecosystem and Its Components: Definition, structure, producers, consumers, decomposers.
8. Environment and Its Components: Physical, chemical, biological components, human impact.
9. Pollutants and Their Effects: Types, environmental issues like greenhouse effect, global warming, acid rain, pollution, ozone depletion.
10. Introduction to Microorganisms: Overview, classification of bacteria, fungi, viruses, and their roles.

Practical

1. Field Survey of Flora & Fauna and their identification
2. Study of herbarium
3. Study of Museum

Recommended Books

1. Keddy, P.A. (2017). Plant ecology origins, processes, consequences. Cambridge, University Press.
2. Canadell, J.G., Diaz, S., Heldmaier, G., Jackson, R.B., Levia, D.F., Schulze, E.D. & Sommer, U. (20 19). Ecological studies. Springer.
3. Bhat, S.V., Nagasampagi, B.A. &Sirakumar, M. (2006). Chemistry of Natural Products. Springer Science
4. De, A.K. (2019). Environmental Chemistry. New Age International Press

Suggested Books:

1. Fath, B. (2018). Encyclopedia of ecology. Elsevier.
2. Ajith, H. Urmas. P., Pastur, G. M &Iversion L. R. (2018). Ecosystem services from forest landscpes: broadsclaes consideration. 1stEdition. Springer International Publishing AG.
3. Xu, R., Ye, Y. & Zhao, W. (2011). Introduction to Natural Product Chemistry. CRC Press
4. Tayler, D.J., Green, N.P.O. & Stout, G.W. (1997). Biological Science 1&2. Cambridge University Press
5. Tayler, M.R., Simon, E.J., Dickey, D.J. & Hogan, K.A. (2020). Campbell Biology: Concepts & Connections (10th Edition). Pearson

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URCG-5116 **Scienceof Society-I** **2 (2-0)**

Course Brief

Thiscoursewillintroducestudentswiththesubjectmatterofsocialscience,itsscope,nature and ways of looking at social phenomenon. It will make the participants acquaintance with thefoundations of modern society, state, law, knowledge and selfhood. While retaining a focus onPakistani state and society, students will encounter theoretical concepts and methods from numeroussocial science disciplines, including sociology, politics, economics anthropology and psychology andmake them learn to think theoretically by drawing on examples and case studies from our own socialcontext. Students will be introduced to the works of prominent social theorists from both western andnon-westerncontexts.Instructionwillincludetheuseofwrittentexts,audio-visual aidsandfield visits.

Learning Outcomes

1. Introducestudentwiththenatureofhumansocialbehaviorandfoundationsofhumangrouplife
2. Analyze the reciprocal relationship between individuals and society.
3. Make students aware of the nature of societies existing in the modern world.
4. Familiarize students with the philosophy of knowledge in social sciences.
5. Introduce students to the works of prominent theorists explaining human group behavior.
6. Help students understand the foundations of society, including culture, socialization, politics, and economy.
7. Introduce students to various dimensions of social inequalities related to gender, race, ethnicity, and religion.
8. Make students aware of the themes related to social science in a local context.
9. Help them recognize the difference between the objective identification of empirical facts and the subjective formulation of opinionated arguments.

Contents

1. **Introduction to Social Sciences**
   - Social world, human social behavior, foundations of society
   - Evolution of social sciences
   - Philosophy of science
   - Scope and nature of social sciences
   - Modernity and social sciences
   - Branches of social science: Sociology, Anthropology, Political Science, Economics
   - Society and community, historical evolution of society
   - Types of societies: Foraging society, horticultural society, pastoralist society, agrarian societies, industrial society, post-industrial society
2. **Philosophy of Knowledge in Social Science and Social Inquiry**
   - Understanding social phenomena
   - Alternative ways of knowing
   - Science as a source to explore social reality
   - Objectivity and value-free research
   - Positivism vs. Interpretivism
   - Qualitative vs. Quantitative research
3. **Culture and Society**
   - Idea of culture, assumptions of culture
   - Types, components, civilization, and culture

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- Individual and culture, cultural ethnocentrism, cultural relativism
- Outlook of Pakistani culture
- Global flows of culture, homogeneity, and heterogeneity

4. **Social Stratification and Social Inequality**
   - Dimensions of inequality, social class
   - Gender, race, religion, ethnicity, caste
   - Patterns of social stratification in Pakistan
   - Class and caste systems in agrarian society
   - Ascription vs. Achievement, meritocracy
   - Global stratification in the modern world, global patterns of inequality
5. **Personality, Self, and Socialization**
   - Concept of self, personality
   - Nature vs. Nurture, biological vs. social influences
   - Development of personality
   - Socialization as a process, agents of socialization
   - Socialization and self/group identity
6. **Gender and Power**
   - Understanding gender
   - Social construction of patriarchy
   - Feminism in historical context, gender debates
   - Gender and development
   - Gender issues in Pakistani society, women's participation in politics, economy, and education
   - Toward a gender-sensitive society, gender mainstreaming
7. **Pakistan: State, Society, Economy, and Polity**
   - Colonialism, colonial legacy, national identity
   - Transformation in Pakistani society: Traditionalism vs. Modernism
   - Economy, informality of economy, modern economy and Pakistan
   - Political economy, sociology of economy

Recommended Textbooks and Reading Materials:

1. Giddens, A. (2018). *Sociology* (11th ed.). UK: Polity Press.
2. Henslin, J. M. (2018). *Essentials of Sociology: A Down-to-Earth Approach* (18th ed.). Pearson Publisher.
3. Macionis, J. J. (2016). *Sociology* (16th ed.). New Jersey: Prentice-Hall.
4. Qadeer, M. (2006). *Pakistan: Social and Cultural Transformation in a Muslim Nation*.
5. Smelser, N. J., & Swedberg, R. *The Handbook of Economic Sociology*, Chapter 1: "Introducing Economic Sociology," Princeton University Press.
6. *Systems of Stratification* | Boundless Sociology. Available at: https://courses.lumenlearning.com/boundless-sociology/chapter/systems-of-stratification/
7. Jalal, A. (Ed.). (1995). "The Colonial Legacy in India and Pakistan," in *Democracy and Authoritarianism in South Asia: A Comparative and Historical Perspective*. Cambridge: Cambridge University Press.
8. Zaidi, S. A. (2015). *Issues in Pakistan's Economy: A Political Economy Perspective*. Oxford University Press. Chapter 26.
9. Akhtar, A. S. (2017). *The Politics of Common Sense: State, Society, and Culture in Pakistan*. Cambridge: Cambridge University Press.
10. Smelser, N. J., & Swedberg, R. *The Handbook of Economic Sociology*, Chapter 1: "Introducing Economic Sociology," Princeton University Press.

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URCG-5118 **FunctionalEnglish** **3(3-0)**

Course Brief

The course aims to help students understand the goals of effective writing, focusing on creating clear, organized, and impactful content. It emphasizes the mastery of grammatical and academic writing skills. Students will learn argumentative writing techniques and how to support their arguments with facts, examples, and statistical evidence. The course will also teach students how to convey knowledge and ideas objectively and persuasively. Additionally, it will cover ethical considerations in academic writing, such as citation, plagiarism, formatting, and referencing, as well as the technical aspects of proper referencing.

Contents

1. Developing Analytical Skills
2. Transitional Devices (words, phrases, and expressions)
3. Development of Ideas in Writing
4. Reading Comprehension
5. Precis Writing
6. Developing Arguments
7. Sentence Structure: Accuracy, Variation, Appropriateness, and Conciseness
8. Appropriate Use of Active and Passive Voice
9. Organization and Structure of a Paragraph
10. Organization and Structure of an Essay
11. Types of Essays

Recommended Books

1. Bailey, S. (2011). *Academic Writing: A Handbook for International Students* (3rd ed.). New York: Routledge.
2. Eastwood, J. (2011). *A Basic English Grammar*. Oxford: Oxford University Press.
3. Swales, J. M., & Feak, C. B. (2012). *Academic Writing for Graduate Students: Essential Tasks and Skills* (3rd ed.). Ann Arbor: The University of Michigan Press.
4. Swan, M. (2018). *Practical English Usage* (8th ed.). Oxford: Oxford University Press.

Suggested Books

1. Biber, D., Johansson, S., Leech, G., Conrad, S., Finegan, E., & Quirk, R. (1999). *Longman Grammar of Spoken and Written English*. Harlow Essex: MIT Press.
2. Cresswell, G. (2004). *Writing for Academic Success*. London: SAGE.
3. Johnson-Sheehan, R. (2019). *Writing Today*. Don Mills: Pearson.
4. Silvia, P. J. (2019). *How to Write a Lot: A Practical Guide to Productive Academic Writing*. Washington: American Psychological Association.
5. Thomson, A. J., & Martinet, A. V. (1986). *A Practical English Grammar*. Oxford: Oxford University Press.

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URCG-5119 **ExpositoryWriting** **3 (3-0)**

Course Brief

This course equips undergraduates with the skills needed to become effective writers and readers of English. It focuses on developing fundamental language abilities, particularly writing, to help students communicate confidently in both oral and written English beyond the classroom. The course is structured into five units and utilizes a Project-Based Learning approach. Each unit emphasizes 21st-century skills, self-reflection, and active community engagement. By the end of the course, students will have developed communication skills as reflective and self-directed learners, engaged with various stages of the writing process, and enhanced their analytical and problem-solving skills to address community-specific challenges.

Contents

1. **Self-Reflection**
   - Introduction to the basics of the writing process
   - Steps of essay writing
   - Prewriting activities: Brainstorming, listing, clustering, and freewriting
   - Practicing essay outlining
2. **Personalized Learning**
   - Learning process, learning styles, goal setting, and creating a learning plan
3. **Oral Presentation**
   - Structure and significance, content selection, slide presentation, and peer review
4. **Critical Reading Skills**
   - Introduction to authentic reading (e.g., Dawn newspaper and non-specialist academic texts)
   - Reading strategies and practice: Skimming, scanning, SQW3R, annotating, detailed reading, and note-taking
   - Standard test practice (TOEFL and IELTS), model review reports, and annotated bibliographies
5. **Community Engagement**
   - Student-led brainstorming on local versus global issues
   - Identifying research problems and drafting research questions
   - Drafting interview/survey questions for community research (in English or L1)
   - Critical reading, presenting interview/survey information, fieldwork
   - Writing a Community Engagement Project
6. **Letter to the Editor**
   - Types, format, and purpose of letters to the editor
   - Steps involved in writing a letter to the editor

Recommended Books

1. Bailey, S. (2011). *Academic Writing: A Handbook for International Students* (3rd ed.). New York: Routledge.
2. Swales, J. M., & Feak, C. B. (2012). *Academic Writing for Graduate Students: Essential Tasks and Skills* (3rd ed.). Ann Arbor: The University of Michigan Press.

Suggested Books

1. Cresswell, G. (2004). *Writing for Academic Success*. London: SAGE.
2. Johnson-Sheehan, R. (2019). *Writing Today*. Don Mills: Pearson.
3. Silvia, P. J. (2019). *How to Write a Lot: A Practical Guide to Productive Academic Writing*. Washington: American Psychological Association.

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General Education Cluster: Quantitative Reasoning

URCG-5120 **Exploring Quantitative Skills** **3(3-0)**

This is an introductory-level undergraduate course that focuses on the fundamentals related to the quantitative concepts and analysis. The course is designed to familiarize students with the basic concepts of mathematics and statistics and to develop students' abilities to analyze and interpret quantitative information. Through a combination of theoretical concepts and practical exercises, this course will also enable students cultivate their quantitative literacy and problem solving skills while effectively expanding their academic horizon and breadth of knowledge of their specific major / field of study.

Course Learning Outcomes

By the end of this course, students shall have:

1. Fundamental numerical literacy to enable them work with numbers, understand their meaning and present data accurately;
2. Understanding of fundamental mathematical and statistical concepts;
3. Basic ability to interpret data presented in various formats including but not limited to tables, graphs, charts, and equations etc.

Contents

1. Numerical Literacy:
    i. Numbers system and basic arithmetic operations;
    ii. Units and their conversions, dimensions, area, perimeter and volume;
    iii. Rates, ratios, proportions and percentages;
    iv. Types and sources of data;
    v. Measurement scales;
    vi. Tabular and graphical presentation of data;
    vii. Quantitative reasoning exercises using number knowledge.

2. Fundamental mathematical concepts:
    i. Basics of geometry (lines, angles, circles, polygons etc.);
    ii. Sets and their operations;
    iii. Relations, functions, and their graphs;
    iv. Exponents, factoring and simplifying algebraic expressions;
    v. Algebraic and graphical solutions of linear and quadratic equations and inequalities;
    vi. Quantitative reasoning exercises using fundamental mathematical concepts.

3. Fundamental Statistical Concepts:
    i. Population and sample;
    ii. Measures of central tendency, dispersion and data interpretation;
    iii. Rules of counting (multiplicative, permutation and combination);
    iv. Basic probability theory;
    v. Introduction to random variables and their probability distributions;
    vi. Quantitative reasoning exercises using fundamental statistical concepts.

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Recommended Texts

1. Sevilla, A., & Somers, K. (2012). *Quantitative reasoning: tools for today's informed citizen*. New Jersey, John Wiley & Sons.
2. Burzynski, D., & Ellis, W. (2008). *Fundamentals of mathematics*. USA, Saunders College Publishing.

Suggested Readings

1. Zaslow, E. (2020). *Quantitative reasoning: thinking in numbers*. Cambridge, Cambridge University Press.
2. de Mesquita, E. B., & Fowler, A. (2021). *Thinking clearly with data: A guide to quantitative reasoning and analysis*. New Jersey, Princeton University Press.
3. Bennett, J., & Briggs, W. (2019). *Using & understanding mathematics: a quantitative reasoning approach*. Pearson.
4. Rosen, K. H., & Krithivasan, K. (2012). *Discrete mathematics and its applications* (Vol. 6). New York: McGraw-Hill.
5. Chatfield, C. (2018). *Statistics for technology: a course in applied statistics*. Routledge.
6. Lock, R. H., Lock, P. F., Morgan, K. L., Lock, E. F., & Lock, D. F. (2020). *Statistics: Unlocking the power of data*. New Jersey, John Wiley & Sons.

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General Education Cluster: Quantitative Reasoning

URCG-5121 **Tools for Quantitative Reasoning** **3(3-0)**

This is a sequential undergraduate course that focuses on logical reasoning supported with mathematical and statistical concepts and modeling / analysis techniques to equip students with analytical skills and critical thinking abilities necessary to navigate the complexities of modern world. The course is designed to familiarize students with the quantitative concepts and techniques required to interpret and analyze numerical data and to inculcate ability in students the logical reasoning to construct and evaluate arguments, identify fallacies, and think systematically. Keeping the pre-requisite course of Quantitative reasoning (I) as its base, this course will enable students further their quantitative. Logical and critical reasoning abilities to complement their specific major field of study

Course Learning Outcomes

By the end of the course, student shall have:

1. Understanding of logic and logical reasoning:
2. Understanding the basic quantitative Modeling and Analyses.
3. Logical reasoning skills and abilities to apply them to solve quantitative problems and evaluate arguments;
4. Ability to critically evaluate quantitative information to make evidence based decisions through appropriate computational tools.

Contents

1. Logic, Logical and Critical Reasoning:
    i. Introduction and importance of logic,
    ii. Introductive, deductive and abductive approaches of reasoning,
    iii. Propositions, arguments (valid; invalid), logical connectives, truth tables and propositional equivalences,
    iv. Logical fallacies,
    v. Venn Diagrams,
    vi. Predicates and quantifiers,
    vii. Quantitative reasoning exercises using logical reasoning concepts and techniques.
2. Mathematical Modeling and Analyses:
    i. Introduction to deterministic models,
    ii. Use of linear function for modeling in real-world situations,
    iii. Modeling with the system of linear equation and linear solutions,
    iv. Elementary introduction to derivatives in mathematical modeling,
    v. Linear and exponential growth and decay models,
    vi. Quantitative reasoning exercises using mathematical modeling.
3. Statistical Modeling and Analyses:
    i. Introduction to probabilistic models,
    ii. Bivariate analysis, scatter plots,
    iii. Simple linear regression model and correlation analysis,
    iv. Basics of estimation and confidence interval,
    v. Testing of hypothesis (z-test; t-test),
    vi. Statistical inference in decision making,
    vii. Quantitative reasoning exercise using statistical modeling.

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Recommended Texts

1. Bennett, J., & Briggs, W. (2019). *Using & understanding mathematics: a quantitative reasoning approach*. Pearson.
2. Rosen, K. H., & Krithivasan, K. (2012). *Discrete mathematics and its applications* (Vol. 6). New York: McGraw-Hill.

Suggested Readings

1. Epp, S. S. (1990). *Discrete mathematics with applications*. Wadsworth Publ. Co..
2. Budnick, F. S., Quinn, S., Bowser, K., & Flaherty, E. H. (1993). *Applied mathematics for business, economics, and the social sciences*. New York: McGraw-Hill.
3. Bluman, A. (2014). *Elementary Statistics: A step by step approach 9e*. McGraw Hill.
4. Mann, P. S. (2007). *Introductory statistics*. John Wiley & Sons.
5. Babones, S. (2013). Applied statistical modeling. *(No Title)*.
6. Green, S. W., Wolf, I.k., Stewrat, B. W. (2022). SAT Study Guide Premium. Barrons

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URCG-5105 **Islamic Studies (Compulsory)** **2(2-0)**

Introductory/compulsory foundation course

Islamic Studies engages in the study of Islam as a textual tradition inscribed in the fundamental sources of Islam: Qur'aan and Hadith, history and particular cultural contexts. The area seeks to provide an introduction to and a specialization in Islam through a large variety of expressions (literary, poetic, social, and political) and through a variety of methods (literary criticism, hermeneutics, history, sociology, and anthropology). It offers opportunities to get fully introductory foundational basis of Islam in fields that include Qur'aanic studies, Hadith and Seerah of Prophet Muhammad (PBUH), Islamic philosophy, and Islamic law, culture and theology through the textual study of Qur'aan and Sunnah.

- To make students understand the relevance and pragmatic significance of Islam in theirlives.
- To make learners comprehend the true spirit of Islam with reference to modernworld.
- To generate a sense of Islamic principles as a code of living that guarantee the effective solutions to the current challenges ofbeing.
- To provide Basic information about IslamicStudies
- To enhance understanding of the students regarding IslamicCivilization
- To improve Students skill to perform prayers and otherworships
- To enhance the skill of the students for understanding the issues related to faith and religious life.

Contents

1.Introduction to Qur'aanic Studies تعارف قرآن مجید

1) Basic Concepts of Qur'aan قرآن مجید کا بنیادی تعارف

2) History of the compilation of Qur'aa تاریخ جمع وتدوین قرآن مجید

3) Uloom-ul-Qur'aan علوم القرآن

مطالعہ قرآن (تعارف قرآن مجید، منتخب آیات کا ترجمہ و تفسیر: سورۃ البقرہ آیات 1-5، 284-286؛ سورۃ الحجرات آیات 1-18؛ سورۃ الفرقان آیات 63-77؛ سورۃ المومنون آیات 1-11؛ سورۃ الاحزاب آیات 6، 21، 32- 33، 40، 56- 59؛ سورۃ الانعام آیات 151-153؛ سورۃ الصف آیات 1- 14؛ الحشر آیات 18- 20؛ آل عمران آیات 190- 192؛ النحل آیات 12-14؛ لقمن آیت 20، حم السجدہ آیت 53

2. Introduction to Hadith تعارف حدیث

1) Legal Status of Hadith حدیث کی قانونی حیثیت

2) History of the compilation of Hadith تاریخ جمع وتدوین حدیث

3) Classifications of Hadith حدیث کی اقسام

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متن حدیث: 1 درج ذیل موضوعات پر احادیث کا مطالعہ

1۔ اعمال کا اجر نیت پر منحصر ہے۔ 2۔ بہترین انسان قرآن کا طالب علم اور اس کا معلم ہے۔ 3۔ کتاب وسنت گمراہی سے بچنے کا ذریعہ ہیں 4۔ ارکان اسلام 5۔ اسلام، ایمان، احسان اور قیامت کی نشانیاں، 6۔ بچوں کو نماز کی تلقین 7۔ دین کا گہرا فہم اللہ کی خاص عنایت ہے 8۔ حصول علم، تلاوت قرآن اور عمل کی اہمیت وفضیلت، 9۔ روز محشر میں ہونے والا محاسبہ، 10۔ حقوق اللہ کے ساتھ ساتھ حقوق العباد کا لحاظ رکھنا بھی لازم ہے 11۔ حسن خلق کی عظمت اور فحش وبدگوئی کی مذمت 12۔ دنیا وآخرت کی بھلائی کی ضامن چار چیزیں، 13۔ ہلاک کر دینے والی سات چیزیں، 14۔ بے عمل مبلغ کا عبرت ناک انجام 15۔ ہر شخص نگران ہے اور ہر شخص مسئول

3. Sirah of the Prophet (PBUH)	سیرت النبی ﷺ
1. Significance of Seerah Studies	مطالعہ سیرت کی ضرورت واہمیت
2. Prophetic principles of Character building	تعمیر سیرت وشخصیت کا نبوی منہاج

اقامت دین کا نبوی طریق کار، اقامت دین بعہد خلافت راشدہ، میثاق مدینہ، خطبہ حجۃ الوداع، اخلاقی تعلیمات، تشکیل اجتماعیت اور اسوہ حسنہ، قرآن مجید میں سیرت سرور عالم کا بیان، غزوات نبوی ﷺ کے مقاصد وحکمتیں

4. Islamic Culture & Civilization	اسلامی تہذیب وتمدن
1) Basic Concepts of Islamic Civilization	اسلامی تہذیب کا مفہوم
2) Historical evaluation of Islamic Civilization	اسلامی تہذیب کا تاریخی ارتقاء
3) Salient feature of Islamic Civilization	اسلامی تہذیب کی نمایاں خصوصیات
4) Islamic Civilization and ContemporaryIssues	اسلامی تہذیب وتمدن اور معاصر مسائل

اسلامی تہذیب کے عوامل وعناصر، اسلامی تہذیب کے علمی، معاشرتی اور سماجی اثرات، تہذیبوں کے تصادم کے نظریے کا تنقیدی جائزہ، تہذیبی تصادم کے اثرات و نتائج، طبعی، حیاتیاتی اور معاشرتی علوم میں مسلمانوں کا کردار، نامور مسلمان سائنسدان

Pre-Requisite: Nil

Recommended Books

1) Hameed ullahMuhammad, —Emergence ofIslam ,IRI,Islamabad
2) Hameed ullah Muhammad, —Muslim Conduct ofState
3) Hameed ullah Muhammad, _Introduction tolslam
4) Ahmad Hasan, —Principles of Islamic Jurisprudence, Islamic Research Institute, International Islamic University, Islamabad (1993)
5) Dr.Muhammad Zia-ul-Haq,—Introduction to Al Sharia Al Islamia, Allama Iqbal Open University, Islamabad(2001)
6) Dr. Muhammad Shahbaz Manj, Teleeemat-e- Islam

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URCG-5126 **ETHICS** **2(2-0)**

Contents

1. Meaning and Scope of Ethics.
2. Relation of Ethics with:
   a) Religion
   b) Science
   c) Law
3. Historical Development of Morality:
   a) Instinctive Moral Life.
   b) Customary Morality.
   c) Reflective Morality.
4. Moral Theories:
   a) Hedonism (Mill)
   b) Intuitionism (Butler)
   c) Kant's Moral Theory.
5. Moral Ethics and Society.
   a) Freedom and Responsibility.
   b) Tolerance
   c) Justice
   d) Punishment (Theories of Punishment)
6. Moral Teachings of Major Religions:
   a) Judaism
   b) Christianity
   c) Islam
7. Professional Ethics:
   a) Medical Ethics
   b) Ethics of Students
   c) Ethics of Teachers
   d) Business Ethics

REFERENCE BOOKS:

1. William Lille. An Introduction to Ethics., London Methuen & Co. latest edition.
2. Titus, H.H. Ethics for Today. New York: American Book, latest edition.
3. Hill, Thomas. Ethics in Theory and Practice. N.Y. Thomas Y. Crowel, latest edition
4. Ameer Ali, S. The Ethics of Islam. Culcutta: Noor Library Publishers, latest edition
5. Donaldson, D.M. Studies in Muslim Ethics. London: latest edition. 6. Sayeed, S.M.A.(Tr.) Ta'aruf-e-Akhlaqiat. Karachi: BCC&T, Karachi University of

URCG-5122 **Ideology and Constitution of Pakistan** 2(2-0)

Course Brief

This course focuses on ideological background of Pakistan. The course is designed to give a comprehensive insight about the constitutional developments of Pakistan. Starting from the Government of India Act, 1935 till to date, all important events leading to constitutional developments in Pakistan will be the focus of course. Failure of the constitutional machinery and leading constitutional cases on the subject. Moreover, students will study the process of governance, national development, issues arising in the modern age and posing challenges to Pakistan. It will also cover the entire Constitution of Pakistan 1973. However, emphasis would be on the fundamental rights, the nature of federalism under the constitution, distribution of powers, the rights and various remedies, the supremacy of parliament and the independence of judiciary

Contents

1. **Ideology of Pakistan**
   - Ideological rationale with special reference to Sir Syed Ahmed Khan, Allama Muhammad Iqbal and Quaid-e-Azam Muhammad Ali Jinnah. Two Nation Theory and Factors leading to Muslim separatism.
2. **Constitutional Developments**
   - Salient Feature of the Government of India Act 1935
   - Salient Feature of Indian Independence Act 1947 Objectives Resolution
   - Salient Feature of the 1956 Constitution
   - Developments leading to the abrogation of Constitution of 1956
   - Salient features of the 1962 Constitution
   - Causes of failure of the Constitution of 1962
   - Comparative study of significant features of the Constitution of 1956, 1962 and 1973
3. **Fundamental rights**
4. **Principles of policy**
5. **Federation of Pakistan**
   - President
   - Parliament
   - The Federal Government
6. **Provinces**
   - Governors
   - Provincial Assemblies T
   - he Provincial Government
7. **The Judicature**
   - Supreme Court
   - High Courts
   - Federal Shariat Courts
   - Supreme Judicial Council
   - Administrative Courts and tribunals
8. **Islamic Provisions in Constitution**
9. **Significant Amendments of Constitution of Pakistan 1973**

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Recommended Books

1. *Constitutional and Political History of Pakistan* by Hamid Khan
2. Mahmood, Shaukat, and Shaukat, Nadeem. *Constitution of the Islamic Republic of Pakistan* (3rd revised edition). Lahore: Legal Research Centre, 1996.
3. Munir, Muhammad. *Constitution of the Islamic Republic of Pakistan: Being a Commentary on the Constitution of Pakistan, 1973*. Lahore: Law Publications, 1975.
4. Rizvi, Syed Shabbar Raza. *Constitutional Law of Pakistan: Text, Case Law and Analytical Commentary* (2nd revised edition). Lahore: Vanguard, 2005.
5. *The Text of the Constitution of the Islamic Republic of Pakistan, 1973* (as amended).
6. *Fundamental Laws of Pakistan* by A.K. Brohi

URCG-5128:Pakistan Studies-2(2-0)

Course Description:
This course is designed to provide students with a comprehensive exploration of Pakistan's identity, encompassing its geographical, historical, and cultural dimensions. It delves into the diverse landscapes, ancient civilizations, and rich cultural heritage that define Pakistan. Additionally, it examines the country's democratic transitions, military interventions, and socio-economic developments. The aim is to develop a nuanced understanding of Pakistan's past, present, and potential future trajectories while enabling students to critically evaluate the complex dynamics shaping the nation's development.

Learning Outcomes:
By the end of this course, students will be able to:

1. Gain enhanced knowledge of the geographical, historical, and political aspects of Pakistan.
2. Understand the societal and cultural diversity of Pakistan.
3. Analyze and explain Pakistan's socio-economic developments.
4. Explore contemporary issues and challenges faced by Pakistan and their implications for its future.

Course Outline:

1. **Introduction to Pakistan**
   - Geographical location and significance.
   - Historical background: Ancient civilizations in the region.
   - Factors leading to the creation of Pakistan.
2. **Political History of Pakistan**
   - Formative phase of Pakistan.
   - Military interventions and democratic transitions.
3. **Geography of Pakistan**
   - Physiography: Mountains, plains, plateaus, deserts, valleys, and coastal areas.
   - River systems: Indus River and its tributaries.
   - Climatic regions of Pakistan.
4. **Society and Culture of Pakistan**
   - Socio-cultural diversity.
   - Languages and literature of Pakistan.
5. **Economic Development of Pakistan**
   - Agriculture and industrial sectors.
   - Economic challenges and prospects.
6. **Contemporary Issues**
   - Foreign relations of Pakistan.
   - Security challenges: Terrorism, extremism, and regional conflicts.
   - Environmental problems and sustainable development (SDGs).
   - Media and social change.

Recommended Readings

1. *Jinnah of Pakistan* by Stanley Wolpert
2. *The Sole Spokesman: Jinnah, the Muslim League, and the Demand for Pakistan* by Ayesha

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Jalal

3. *The Struggle for Pakistan* by Ishtiaq Hussain Qureshi
4. *Pakistan: The Formative Phase, 1857–1947* by Khalid B. Sayeed
5. *Pakistan Studies: A Book of Readings* by Sikandar Hayat
6. *Constitutional and Political History of Pakistan* by Hamid Khan
7. *Trek to Pakistan* by Ahmad Saeed and Kh. Mansur Sarwar
8. *Pakistan: A Modern History* by Ian Talbot
9. *Politics in Pakistan: The Nature and Direction of Change* by Khalid B. Sayeed
10. *Physical Geography of Pakistan* by Umar Jahangir
11. *A Geography of Pakistan: Environment, People, and Economy* by Fazle Karim Khan
12. *Pakistan's Foreign Policy: A Historical Analysis* by S.M. Burke
13. *Separatism in East Pakistan* by Rizwan Ullah Kokab
14. *Being Pakistani: Society, Culture and the Arts* by Raza Rumi
15. *Pakistan's Cultural Heritage: Socio-Economic and Technological Aspects* edited by Abdul Jabbar Khan
16. *Language and Politics in Pakistan* by Tariq Rahman
17. *Sociology* by Horton and Hunt
18. *Pakistan in the Twentieth Century: A Political History* by Lawrence Ziring
19. *Economic Development of Pakistan* by Ishrat Husain
20. *Issues in Pakistan's Economy* by S. Akbar Zaidi

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URCG-5123 Applications of Information and Communication Technologies (ICT) 3(2-1)

Course Brief

The course introduces students to information and communication technologies and their application in the workplace. Objectives include basic understanding of computer software, hardware, and associated technologies. How computers can be used in the workplace, how communications systems can help boost productivity, and how the Internet technologies can influence the workplace. Students will get basic understanding of computer software, hardware, and associated technologies. They will also learn how computers are used in the workplace, how communications systems can help to boost productivity, and how the Internet technologies can influence the workplace.

Contents

7. Introduction, Overview of Information Technology.
8. Hardware: Computer Systems & Components, Storage Devices.
9. Software: Operating Systems, Programming and Application Software.
10. Databases and Information Systems Networks.
11. File Processing Versus Database Management Systems.
12. Data Communication and Networks.
13. Physical Transmission Media & Wireless Transmission Media.
14. Applications of smart phone and usage.
15. The Internet, Browsers and Search Engines.
16. Websites and their types.
17. Email Collaborative Computing and Social Networking.
18. E-Commerce.
19. IT Security and other issues.
20. Cyber Laws and Ethics of using social media.
21. Use of Microsoft Office tools (Word, Power Point, Excel) or other similar tools depending on the operating system.
22. Other IT tools/software specific to field of study of the students if any.

Recommended Book

1. Discovering Computers 2022: Digital Technology, Data and Devices by Misty E. Vermaat, Susan L. sebok; 17th edition.

Suggested Books

1. Computing Essentials 2021 by Timothy J. O'Leary and Linda I. O'Leary, McGraw Hill Higher Education; 26th edition.
2. Computers: Understanding Technology by Fuller, Floyd; Larson, Brian: edition 2018.

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URCG-5124 **Entrepreneurship** 2(2-0)

Course Brief

This course addresses the unique entrepreneurial experience of conceiving, evaluating, creating, managing, and potentially selling a business idea. The goal is to provide a solid background with practical application of important concepts applicable to the entrepreneurial environment. Entrepreneurial discussions regarding the key business areas of finance, accounting, marketing and management include the creative aspects of entrepreneurship. The course relies on classroom discussion, participation, the creation of a feasibility plan, and building a business plan to develop a comprehensive strategy for launching and managing a new venture.

Course Learning Objectives

1. To enhance the 'entrepreneurial intentions' of the students by improving their natural willingness to start a business.
2. To understand the process of entrepreneurship and learn the ways to manage it by working individually in the class and in the form of groups outside the class to conduct field assignments.
3. To educate the students about the practical underpinnings of the entrepreneurship with the aid of practical assignments and idea pitching.

Contents

1. **Background:** What is an Organization, Organizational Resources, Management Functions, Kinds of Managers, Mintzberg's Managerial Roles.
2. **Forms of Business Ownership**: The Sole proprietorship, Partnership, Joint Stock Company
3. **Entrepreneurship:** The World of the Entrepreneur, what is an entrepreneur? The Benefits of Entrepreneurship, The Potential Drawbacks of Entrepreneurship, Behind the Boom: Feeding the Entrepreneurial Fire.
4. **The Challenges of Entrepreneurship:** The Cultural Diversity in Entrepreneurship, The Power of "Small" Business, Putting Failure into Perspective, The Ten Deadly Mistakes of Entrepreneurship, How to Avoid the Pitfalls, Idea Discussions & Selection of student Projects, Islamic Ethics of Entrepreneurship.
5. **Inside the Entrepreneurial Mind:** From Ideas to Reality: Creativity, Innovation, and Entrepreneurship, Creativity – Essential to Survival, Creative Thinking, Barriers to Creativity, How to Enhance Creativity, The Creative Process, Techniques for Improving the Creative Process, Protecting Your Ideas, Idea Discussions & Selection of student Projects.
6. **Products and technology, identification opportunities**
7. **Designing a Competitive Business Model and Building a Solid Strategic Plan**: Building a strategic plan, building a Competitive Advantage, The Strategic Management Process, formulate strategic options and select the appropriate strategies, Discussion about execution of Students' Project.
8. **Conducting a Feasibility Analysis and Crafting a Winning Business Plan:** Conducting a Feasibility Analysis, Industry and market feasibility, Porter's five forces model, Financial feasibility analysis. Why Develop a Business Plan, The Elements of a Business Plan, What

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Lenders and Investors Look for in a Business Plan, Making the Business Plan Presentation.

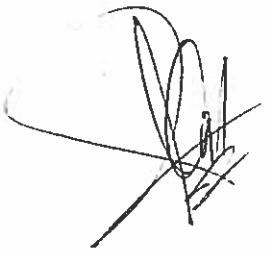
9. **Building a Powerful Marketing Plan**: Building a Guerrilla Marketing Plan, Pinpointing the Target Market, Determining Customer Needs and Wants Through Market Research. Plotting a Guerrilla Marketing Strategy: How to Build a Competitive Edge, Feed Back & Suggestions on Student Project, Islamic Ethics for Entrepreneurial Marketing
10. **E-Commerce and the Entrepreneur:** Factors to Consider before Launching into ECommerce, Ten Myths of E-Commerce, Strategies for E-Success, Designing a Killer Web Site, Tracking Web Results, Ensuring Web Privacy and Security, Feed Back & Suggestions on Student Project.
11. **Pricing Strategies:** Three Potent Forces: Image, Competition, and Value, Pricing Strategies and Tactics, Pricing Strategies and Methods for Retailers, The Impact of Credit on Pricing
12. **Attracting Venture Capitalist**: Projected Financial Statements, Basic Financial Statements, Ratio Analysis, Interpreting Business Ratios, Breakeven Analysis, Feed Back &Suggestions on Student Project,
13. **Idea Pitching**: Formal presentation, 5-minutes pitch, funding negotiation and launching.

Recommended Books

1. Scarborough, N. M. (2011). Essentials of entrepreneurship and small business management. Publishing as Prentice Hall, One Lake Street, Upper Saddle River, New Jersey 07458..

Suggested Books

2. Burstiner, I. (1989). Small business handbook. Prentice Hall Press.



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URCG-5125 **Civics and Community Engagement** **2(2-0)**

Course Brief

The Civics and Community Engagement course is designed to provide students with an understanding of the importance of civic participation, culture and cultural diversity, basic foundations of citizenship, group identities and the role of individuals in creating positive change within their communities. The course aims at developing students' knowledge, skills and attitudes necessary for active and responsible citizenship.

Course Learning outcomes

1. After completing this course, students will be able to
2. Understand the concepts of civic engagement, community development, and social responsibility.
3. Understand rights and responsibilities of citizenship
4. Understand cultural diversity in local and global context
5. Analyze the significance of civic participation in promoting social justice, equity, and
6. democracy.
7. Examine the historical and contemporary examples of successful civic and community engagement initiatives.
8. Identify and assess community needs, assets, and challenges to develop effective strategies for community improvement.
9. Explore the ethical implications and dilemmas associated with civic and community engagement.
10. Develop practical skills for effective community organizing, advocacy, and leadership.
11. Foster intercultural competence and respect for diversity in community engagement efforts.
12. Collaborate with community organizations, stakeholders, and fellow students to design and implement community-based projects.
13. Reflect on personal growth and learning through self-assessment and critical analysis of community engagement experiences.

Course Contents

1. **Introduction to Civics & Community Engagement**
   a. Overview of the course: Civics & Community Engagement
   b. Definition and importance of civics
   c. Key concepts in civics: citizenship, democracy, governance, and the rule of law
   d. Rights and responsibilities of citizens
2. **Citizenship and Community Engagement**
   a. Introduction to Active Citizenship: Overview of the Ideas, Concepts, Philosophy and Skills
   b. Approaches and Methodology for Active Citizenship
3. **Identity, Culture, and Social Harmony**
   a. Concept and Development of Identity, Group identities
   b. Components of Culture, Cultural pluralism, Multiculturalism, Cultural Ethnocentrism, Cultural relativism, Understanding cultural diversity,

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Globalization and Culture, Social Harmony,
   c. Religious Diversity (Understanding and affirmation of similarities & differences)
   d. Understanding Socio-Political Polarization
   e. Minorities, Social Inclusion, Affirmative actions
4. **Multi-cultural society and inter-cultural dialogue**
   a. Inter-cultural dialogue (bridging the differences, promoting harmony)
   b. Promoting intergroup contact/ Dialogue
   c. Significance of diversity and its impact
   d. Importance and domains of Inter-cultural dialogue
5. **Active Citizen: Locally Active, Globally Connected**
   a. Importance of active citizenship at national and global level
   b. Understanding community
   c. Identification of resources (human, natural and others)
   d. Utilization of resources for development (community participation)
   e. Strategic planning, for development (community linkages and mobilization)
6. **Human rights, constitutionalism and citizens' responsibilities**
   a. Introduction to Human Rights
   b. Human rights in constitution of Pakistan
   c. Public duties and responsibilities
   d. Constitutionalism and democratic process
7. **Social Institutions, Social Groups, Formal Organizations and Bureaucracy**
   a. Types of Groups, Group identities, Organizations
   b. Bureaucracy, Weber's model of Bureaucracy
   c. Role of political parties, interest groups, and non-governmental organizations
8. **Civic Engagement Strategies**
   a. Grassroots organizing and community mobilization
   b. Advocacy and lobbying for policy change
   c. Volunteerism and service-learning opportunities
9. **Social issues/Problems of Pakistan**
   a. Overview of major social issues of Pakistani society
10. **Social Action Project**

Recommended Books

1. Kennedy. J. K., & Brunold, A. (2016). Regional context and Citizenship education in Asia and Europe. New Yourk: Routledge, Falmer.
2. Henslin, James M. (2018). Essentials of Sociology: A Down to Earth Approach (13th ed.). New York: Pearson Education
3. Macionis, J. J., & Gerber, M.L. (2020). Sociology. New York: Pearson Education

Suggested Books

1. 1. Glencoe McGraw-Hill. (n.d.). Civics Today: Citizenship, Economics, and Youth.
2. 2. Magleby, D. B., Light, P. C., &Nemacheck, C. L. (2020). Government by the People (16th ed.). Pearson.
3. 3. Sirianni, C., & Friedland, L. (2005). The Civic Renewal Movement: Community-Building and Democracy in the United States. Kettering Foundation Press.

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4. 4. Bloemraad, I. (2006). Becoming a Citizen: Incorporating Immigrants and Refugees in the United States and Canada. University of California Press.
5. 5. Kuyek, J. (2007). Community Organizing: Theory and Practice. Fernwood Publishing.
6. 6. DeKieffer, D. E. (2010). The Citizen's Guide to Lobbying Congress. TheCapitol.Net.
7. 7. Rybacki, K. C., & Rybacki, D. J. (2021). Advocacy and Opposition: An Introduction to Argumentation (8th ed.). Routledge.
8. 8. Kretzmann, J. P., & McKnight, J. L. (1993). Building Communities from the Inside Out: A Path Towards Finding and Mobilizing a Community's Assets. ACTA Publications.
9. 9. Patterson, T. E. (2005). Engaging the Public: How Government and the Media Can Reinvigorate American Democracy. Oxford University Press.
10. 10. Love, N. S., & Mattern, M. (2005). Doing Democracy: Activist Art and Cultural Politics. SUNY

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Model Course Outline
for the Course Understanding of Quran – I

Course Title: Understanding of Quran – I **Course Code:** URCG-5129
Course Book: Muallim ul Quran (Volume 1, 2 & 3) by Dr Ubaid ur Rahman
Credit Hours: 1 (0-1)
Contact Hours: 3 per week
Weeks: 15-16 (45-48 hours)

Course Learning Outcomes:

By the end of this course, students will be able to:

1. Develop the ability to understand basic words of the Quran, phrases and sentences that do not contain verbs (unit 1 to 5 of Muallim ul Quran Book) and then sentences having present tense (first half of unit 6 of Muallim ul Quran Book).
2. Acquire a strong foundation for understanding long verses of the Quran with clarity.
3. Comprehend Quranic vocabulary, particles (operative & non operative particles) , compounds (Adjective & Possessive compound), pronouns (singular & plural) and types of plural through hundreds of Quranic sentences.
4. Recognize and understand different styles of Quranic sentences, including nominal sentence, emphatic sentence, double emphatic sentence, negative sentence, interrogative sentence, oath –based sentences.
5. Strengthen understanding of fundamental Quranic linguistic styles, expressions and idioms.
6. Understand at least 30 to 40 % of each page of the holy Quran.

Provision of material, content and books:

- **Paper book:** All volumes are available in printed book form.
- **Tutorial videos:** Teaching video of each lesson available on YouTube.
- **Confirmation Videos:** A complete series of confirmation videos of all lessons is available in which the student can confirm his answers.
- **A flipbook:** A flipbook edition is also accessible.
- **Helping material:** Helping material for the teachers like quizzes, question papers and images is available on website.

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Course Outline:

Weeks	Lectures (1.5 hrs)	Units	Lessons	Assignments/Home Task	Linguistic Rules
1.	1.	1	1-6	Writing the meaning of Quranic words Lesson 1-8	Proper Noun Masculine & Feminine
	2.	1	9-14	Writing the meaning of Quranic words 9-14	Two kinds of plural Concept of (و) "And" Common Noun
2.	1.	1	15-17	Writing the meaning of Quranic words, phrases & translation of Sentences 15-17	Demonstrative Noun (This & That for Masculine (هذا- هذه) Demonstrative Noun (This & That for Feminine) (ذلك- تلك)
	2.	1	18-19 & Revision (Unit 1)	Writing the meaning of Quranic words , phrases & translation of Sentences 17-19 Quiz	Laam for emphasis (لام التأكيد) Superlative Degree like أكبر Revision of all Quranic Sentences
3.	1.	Unit 2	1-3	Writing the meaning of Quranic words, phrases & translation of Sentences 1-3	Emphatic Particle إن Preposition "For" (اللام) Preposition (في)
	2.	2	4-6	Writing the meaning of Quranic words, phrases & translation of Sentences 4-6	Preposition (على- من- إلى)
4.	1.	2	7- 9	Writing the meaning of Quranic words & translation of Sentences 7-9	Preposition (الباء) Absolute Negation Particle Exceptive Particle (لا النافية للجنس)(ما النافية) (إلا)
	2.	2	10-13 & Revision (Unit 2)	Writing the meaning of Quranic words, phrases & translation of Sentences 10-13 Quiz	Subordinating Conjunction(أن), Was (كان), Vocative Particle(حرف النداء)

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5.	1.	Unit 3	1-2	Writing the meaning of Quranic phrases 1-2	Quranic Adjective Compounds (صفة وموصوف)
	2.	3	3-5	Writing the meaning of Quranic phrases & translation of sentences 3-5	Quranic Possessive Construction (مضاف ومضاف إليه)
6.	1.	3	6 -7	Writing the meaning of Quranic phrase translation of sentences 6-7	Quranic Possessive Construction (مضاف ومضاف إليه)
	2.	3	8-10 & Revision (Unit 3)	Writing the meaning of Quranic phrase & translation of sentences 8-10 Quiz	Active Participle (اسم الفاعل), Passive Participle (اسم المفعول), Dual (مثنى)
7.	1.	Unit 4	1-2	Writing the meaning of Quranic phrase & translation of sentences 1-2	Personal Pronoun He(هو المنفصل) Possessive Pronoun His ـه المتصل)
	2.	4	3-4	Writing the meaning of Quranic phrase & translation of sentences 3 -4	Possessive Pronoun with prepositions like في بيته Pronoun "His" with prepositions like له، منه، فيه
8.	1.	4	5-8	Writing the meaning of Quranic sentences 5-8	Personal Pronoun You(أنت المنفصل) Possessive Pronoun Your ك المتصل) Possessive Pronoun with prepositions like في بيتك Pronoun "your" with prepositions like لك، منك، فيك
	2.	Mid Term			

9.	1.	4	9-12	Writing the meaning of Quranic phrases & sentences 9-12	Personal Pronoun She(هي المنفصل) Possessive Pronoun Her ها المتصل) Possessive Pronoun with prepositions like في بيتها Pronoun "Her" with prepositions like لها،
	2.	4	13-16	Writing the meaning of Quranic phrases & sentences 13-16	Personal Pronoun I (أنا المنفصل) Possessive Pronoun Her ي المتصل) Possessive Pronoun with prepositions like في بيتيPronoun "My" with prepositions like لي
10.	1	4	17 & Revision Unit 4	Revision of all Quranic sentences of Unit 4 Quiz	Adverb (حال)
	2.	Unit 5	1-2	Writing the meaning of Quranic phrases & sentences 1-2	Masculine Plural جمع المذكر السالم و جمع المذكر السالم المسبوق بحرف الجر
11.	1.	5	3-4	Writing the meaning of Quranic phrases & sentences 3-4	Possessive Construction with Plurals جمع المذكر السالم المسبوق بالإضافة
	2.	5	5-6	Writing the meaning of Quranic phrases, sentences & verses 5-6	Personal Pronoun They (هم المنفصل) Possessive Pronoun Their هم المتصل)
12.	1.	5	7-8	Writing the meaning of Quranic phrases, sentences & verses 7-8	Possessive Pronoun with prepositions like في بيتهمPronoun "Their" with prepositions like لهم
	2.	5	9-11	Writing the meaning of Quranic phrases, sentences & verses 9-11	Personal Pronoun You (أنتم المنفصل) Possessive Pronoun Your كم المتصل) Possessive Pronoun with prepositions

					like في بيتكم
13.	1.	5	12-14	Writing the meaning of Quranic phrases & sentences & verses 12-14	Pronoun "Your" with prepositions like لكم Personal Pronoun We (نحن المنفصل) Possessive Pronoun Our نا المتصل)
	2.	5	15-16	Writing the meaning of Quranic sentences & verses 15-16	Possessive Pronoun with prepositions like في بيتنا Pronoun "Our" with prepositions like لنا
14.	1.	5	17-18	Writing the meaning of Quranic sentences & Verses 17-18	Demonstrative Pronoun These, Those (هؤلاء- أولئك)
	2.	5	19-23	Writing the meaning of Quranic sentences & Verses 19-23	ما / إلا، إن / إلا، إنما، ليس، ما ،) أ/أم، أن، بل، كأن (ألا، أليس، اليوم، يومئذ، سبحان، مابينهما، قل، إذن، بئس، نعم، كلا، ما أدراك، حسب، أعلم ب، مصير، مرجع، دينا(تمييز)
15.	1.	5	Revision Unit 5	Quiz	
	2.	5	1-3 (till Page 16)	Writing the meaning of Quranic Verbs &Translation of Quranic Sentences & Verses (1-3)	Introduction of Present Tense(فعل مضارع) & Verbal Sentence (جملة فعلية) Present Tense الفعل المضارع صيغة المفرد يعلم
16.	1.	6	3 (From Page 17) & 4 -5	Translation of Quranic Sentences & Verses 3-5	Present Tense الفعل المضارع صيغة المفرد يعلم
	2.	6	6	Translation of Quranic Sentences & Verses	Present Tense الفعل المضارع صيغة الجمع يعلمون

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Model Course Outline
for the Course Understanding of Quran – II

Course Title: Understanding of Quran – II **Course Code:** URCG-5130
Course Book: Muallim ul Quran (Volume 3, 4 & 5) by Dr Ubaid ur Rahman
Credit Hours: 1 (0-1)
Contact Hours: 3 per week
Weeks: 15-16 (45-48 hours)

Course Learning Outcomes:

By the end of this course, students will be able to:

1. Directly comprehend hundreds of Quranic sentences & verses.
2. Understand at least 80 to 85 % of each page of the holy Quran.
3. Understand common verses across different Quranic topics.
4. Achieve proficiency in the basic and advance linguistic aspects of the Arabic language.
5. Understand the difference between Quranic verbs in various forms, such as present, past and imperative.
6. Develop the ability to understand long verses of the holy Quran independently and then comprehend their interpretation.

Provision of material, content and books:

- **Paper book:** All volumes are available in printed book form.
- **Tutorial videos:** Teaching video of each lesson available on YouTube.
- **Confirmation Videos:** A complete series of confirmation videos of all lessons is available in which the student can confirm his answers.
- **A flipbook:** A flipbook edition is also accessible.
- **Helping material:** Helping material for the teachers like quizzes, question papers and images is available on website.

Course Outline:

Weeks	Lectures	Units	Lessons	Assignments/Home Task	
1.	1.	6	6	Understanding & Translation of Verses	Present Tense صیغۃ جمع مذکر غائب مثل یعبدون
	2.	6	7-8	Understanding & Translation of Verses	Present Tense صیغۃ جمع مذکر غائب مثل یعبدون
2.	1.	6	9-10	Understanding & Translation of Verses	Present Tense صیغۃ مفرد مذکر مخاطب (تعبد) وجمع مذکر مخاطب (تعبدون)
	2.	6	11-12	Understanding & Translation of Verses	Present Tense صیغۃ جمع مذکر مخاطب (تعبدون)

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					صيغة المتكلم (أعبد)
3.	1.	6	13	Understanding & Translation of Verses	Present Tense صيغة جمع المتكلم (نعبد)
	2.	6	14-15	Understanding & Translation of Verses	Negative Imperative صيغة المفرد وصيغة الجمع , لا تعبد، لا تعبدوا
4.	1.	6	16-17	Understanding & Translation of Verses	Conditional Sentences & masdar moawal (مصدر موزل)
	2.	6	18-19	Understanding & Translation of Verses	Laam uttaleel (لام التعليل) & Laam ul jhood(لام الجحود)
5.	1.	6	20-21	Understanding & Translation of Verses	Present with object pronouns & Passive Voice
	2.	6	Revision (Unit 6)	Quiz	
6.	1.	Unit 7	1 (sec 1-3)	Understanding & Translation of Verses	Past Tense صيغة المفرد الغائب
	2.	6	1 (Sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة المفرد الغائب
7.	1.	6	1 (Sec 5-6)	Understanding & Translation of Verses	Past Tense صيغة المفرد الغائب
	2.	6	1 (Sec 7-9)	Understanding & Translation of Verses	Past Tense صيغة المفرد الغائب
8.	1.	7	Revision	Understanding & Translation of Verses QUIZ	Past Tense صيغة المفرد الغائب
	2.	MID TERM			
9.	1.	7	2 (sec 1-2)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
	2.	7	2 (sec 3)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
10.	1.	7	2 (sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
	2.	7	2 (sec 6-7)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
11.	1.	7	3 (sec 1-2)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمتكلم عبدنا

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	2.	7	3 (sec 2-3)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمتكلم عبدنا
12.	1.	7	3 (sec 3-4)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمتكلم عبدنا
	2.	7	3 (sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمتكلم عبدنا
13.	1.	7	4 (sec 1-2-3)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمخاطب عبدتم
	2.	7	4 (sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمخاطب عبدتم
14.	1.	7	5-6	Understanding & Translation of Verses Quiz	Past Tense صيغة المتكلم والمخاطب عبدتُ ، عبدتَ
	2.	7	7	Understanding & Translation of Verses	Past Tense صيغة المونث للغائب عبدتْ
15.	1.	7	8	Understanding & Translation of Verses	Passive Voice (Past Tense) فعل مجهول للمفرد
	2.	7	9	Understanding & Translation of Verses	Passive Voice (Past Tense) فعل مجهول الجمع
16.	1.	8	1-4	Understanding & Translation of Verses	Imperative Verb for singular فعل الأمر للمفرد
	2.	7	5-8	Understanding & Translation of Verses	Imperative Verb for plural فعل الأمر للجمع

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Seerat of the Holy Prophet مطالعہ سیرت النبی صلی اللہ علیہ وسلم

Course Code : URCG-5127

Title	Description
Semester	
Nature of Course	
No. of C.Hrs.	1(1-0)
Total Teaching weeks	18
Objectives of the Course	۱۔ طلباء کو مطالعہ سیرت طیبہ کی ضرورت و اہمیت سے آگاہ کرنا ۲۔ تعمیر شخصیت میں مطالعہ سیرت طیبہ کے کردار کو واضح کرنا ۳۔ بعثت نبوی کے موقع پر اقوام عالم کی عمومی صورت حال سے آگاہ کرنا ۴۔ رسول اکرم صلی اللہ علیہ وسلم کی مکی اور مدنی زندگی کا اس طرح مطالعہ کروانا کہ طلباء ان واقعات سے نتائج کا استنباط کر سکیں ۵۔ طلباء کو عہد نبوی کی معاشرت، سیاست، معیشت سے آگاہ کرنا

Course Description

S.No.	Title	Description
1	حضور صلی اللہ علیہ وسلم کے ابتدائی سالات زندگی	۱۔ حضور صلی اللہ علیہ وسلم کا خاندانی حسب و نسب ۲۔ پیدائش اور ابتدائی تربیت ۳۔ لڑکپن اور جوانی کے حالات زندگی
2	بعثت نبوی کے وقت دنیا کے حالات (۱)	۱۔ بعثت نبوی کے وقت اہم تہذیبیں ۲۔ عرب، مصر، حبشہ، بازنطینی، ساسانی
3	بعثت نبوی	۱۔ مکی عہد میں دعوت اسلام
4	بعثت نبوی	۱۔ مدنی عہد میں دعوت اسلام
5	خصائص النبیؐ	آپؐ بطور پیغامبر امن
6	خصائص النبیؐ	بحیثیت استاد و معلم
7	خصائص النبیؐ	بحیثیت تاجر
8	خصائص النبیؐ	بحیثیت سربراہ ریاست
9	خصائص النبیؐ	ذاتی محاسن اور عالمگیر اثرات

ناموس رسالت		
غیر مسلموں سے تعلقات		
اسوہ حسنہ کی روشنی میں گھریلو زندگی		
مستشرقین اور مطالعہ سیرت		
وطن سے محبت اور سیرت		
مستشرقین کے اعتراضات اور ان کے جوابات		

10	خصائص النبیؐ	اسوہ حسنہ اور عصر حاضر
11	اسوہ حسنہ اور عصر حاضر	
12	اسوہ حسنہ اور عصر حاضر	
13	اسوہ حسنہ اور عصر حاضر	
15	اسوہ حسنہ اور عصر حاضر	
16	اسوہ حسنہ اور عصر حاضر	

نصابی کتب

نمبر شمار	نام مؤلف	نام کتاب
1	ابن ہشام	السیرۃ النبویۃ
2	مولانا شبلی نعمانی، سید سلمان ندوی	سیرۃ النبی صلی اللہ علیہ وسلم
3	قاضی محمد سلیمان سلمان منصور پوری	رحمۃ للعالمین
4	مولانا سید ابوالحسن علی ندوی	نبی رحمت صلی اللہ علیہ وسلم
5	ڈاکٹر یٰسین مظہر صدیقی	محمد نبوی کا نظام حکومت
6	ڈاکٹر خالد علوی	انسان کامل

حوالہ جاتی کتب

نمبر شمار	نام مؤلف	نام کتاب
1	سید ابوالاعلیٰ مودودی	سیرت سرور عالم صلی اللہ علیہ وسلم
2	مولانا صفی الرحمن مبارکپوری	الرحیق المختوم
3	پیر محمد کرم شاہ الازہری	ضیاء النبی صلی اللہ علیہ وسلم
4	ڈاکٹر اکرم ضیاء العمری	السیرۃ النبویۃ الصحیحۃ
5	مولانا عبدالرؤف دانا پوری	اصح السیر

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Ethics-I **URCG-5131** **1 (0-1)**

1-Course Description

The Ethics-I course is designed to provide students with a comprehensive understanding of ethical principles, practices, and theories in various societal contexts. Throughout this degree program, students will explore the complexities of ethical theories of semitic and non-semitic religions along with decision-making and develop critical thinking skills to navigate moral dilemmas. This course will also enable the students to interact with others religious identities with humanistic, inclusive and holistic approach

2- Learning Objectives

This course aims to:

1. Introduce students to the fundamental concepts, scope, and importance of ethics.
2. Explore the relationship between law, morality, and social values.
3. Develop a clear understanding of virtuous and immoral ethics and their impact on individual and collective life.
4. Study the role of major religious figures in the moral development of human society and enable students to apply ethical principles for personal development, conflict resolution, and social harmony.

3- Learning Outcomes

By the end of the course, students will be able to:

1. Students will be able to identify and analyze major ethical theories, values, and their scope in social and individual life.
2. Differentiate between law and ethics, and analyze their interrelationship.
3. Identify types of virtuous and immoral ethics and assess their social impacts.
4. Examine the ethical teachings of major religions and their relevance in contemporary society.
5. Apply ethical principles to address modern challenges in personal and professional life.

4-Course Structure

1. Interactive lectures, Group discussions and debates
2. Reflection papers and presentations
3. Assignments and Quiz

Course Contents

Unit 1: Introduction and Fundamentals of Ethics

1. Literal and terminological definition of ethics
2. Literal and terminological definition of values
3. Relationship between law and ethics
4. Need, importance, and scope of ethics

Unit 2: Types of Ethics and Their Impact on Society

- Virtuous ethics: concept, types, benefits, and outcomes
- Immoral ethics: concept, types, and harms
- Role of ethics in social refinement and establishment of peace

Unit 3: Virtuous Ethics (Akhlaq-e-Hasanah)

- Concept, need, and importance of virtuous ethics
- Scope of virtuous ethics in the light of religions
- Major virtues in revealed and non-revealed religions
- Impact of virtuous ethics on individual and collective life

Unit 4: Immoral Ethics (Akhlaq-e-Razilah)

- Concept of immoral ethics
- Social problems caused by immoral ethics
- Practical consequences of immoral ethics
- Major vices in revealed and non-revealed religions

Unit 5: Role of World Religious Figures in Moral Development

- Prophet Moses (AS): introduction, miracles, and role in moral refinement
- Prophet Jesus (AS): introduction, miracles, and role in moral refinement
- Prophet Muhammad (ﷺ): introduction, miracles, and role in moral refinement

Textbook

1. Izutsu, T. (2002). *Ethico-Religious Concepts in the Qur'an*. McGill-Queen's University Press.

Suggested Readings

1. Gert, B. (2005). *Morality: Its Nature and Justification*. Oxford University Press.
2. MacIntyre, A. (2007). *After Virtue: A Study in Moral Theory*. University of Notre Dame Press.
3. Al-Ghazali, Abu Hamid (2001). *The Alchemy of Happiness*. Islamic Texts Society.
4. Nasr, S. H. (1994). *The Heart of Islam: Enduring Values for Humanity*. Harper One.
5. Beauchamp, T. L., & Childress, J. F. (2019). *Principles of Biomedical Ethics*. Oxford University Press.
6. Hasan, Z. (2010). *Ethics in Islam: Key Concepts and Contemporary Challenges*. Islamic Research Institute.

1 (0-1)

Ethics-II URCG-5132

1-Course Description

The course *Ethics-II* is designed to provide students with a deeper understanding of ethical principles and practices from both Semitic and non-Semitic religions, as well as their application in professional and social contexts. Students will engage with Jewish, Christian, Islamic, Hindu, Buddhist, Sikh, Confucian, and Jain ethical traditions. The course emphasizes moral reasoning, decision-making, tolerance, and peacebuilding. It aims to cultivate an inclusive, humanistic, and holistic approach towards ethical living and interfaith engagement.

2- Learning Objectives

The course objectives are to:

1. Understand the fundamental principles and theories of ethics.
2. Introduce the ethical and moral teachings of Judaism, Christianity, Islam, and Hinduism.
3. Explore the ethical teachings of non-Semitic religions such as Buddhism, Sikhism, Confucianism, and Jainism.
4. Develop critical thinking skills to evaluate ethical arguments and theories.
5. Promote ethical leadership and interfaith harmony.

3- Learning Outcomes

By the end of this course, students will be able to:

1. Identify and analyze major ethical theories and teachings from world religions.
2. Understand the role of religions in improving moral values and social behavior.
3. Demonstrate ethical decision-making in various personal and professional contexts.
4. Recognize the impact of ethical decisions on individuals, communities, and society.
5. Apply skills of ethical leadership, including communication, conflict resolution, and inclusive engagement.

4-Course Structure

1. Interactive lectures, Group discussions and debates
2. Reflection papers and presentations
3. Assignments and Quiz

Course Contents

Unit 1: Ethical Teachings of Semitic Religions

- Judaism and its ethical teachings
- Christianity and its ethical teachings
- Islam and its ethical teachings

Unit 2: Ethical Teachings of Non-Semitic Religions

- Hinduism and its ethical teachings
- Sikhism and Buddhism: ethical values and practices
- Confucian and Jain ethical traditions

Unit 3: Professional Ethics

- Ethics for students and teachers
- Ethics in doctor–patient relationships
- Ethics in trader–customer interactions

Unit 4: Concept and Significance of Tolerance

- Definition, need, and importance of tolerance
- Teachings of Semitic religions on tolerance and their contemporary relevance
- Teachings of non-Semitic religions on tolerance and their contemporary relevance

Unit 5: Foundational Values and Ethics for Peacebuilding in Society

- Respect for sacred scriptures, personalities, places of worship, and religious symbols
- Promotion of tolerance and broadmindedness
- Encouragement of dialogue and harmony
- Benevolence towards humanity
- Establishment of justice and fairness
- Patience, forbearance, and forgiveness

Textbook

- Kidder, R. M. (2009). *How Good People Make Tough Choices: Resolving the Dilemmas of Ethical Living*. Harper.

Suggested Readings

1. Barash, D. P., & Webel, C. P. (2014). *Peace and Conflict Studies*. Sage.
2. Smart, N. (1998). *The World's Religions*. Cambridge University Press.
3. Nasr, S. H. (2003). *The Heart of Islam: Enduring Values for Humanity*. HarperOne.
4. Sharma, A. (2006). *Hindu Ethics: Purity, Abortion, and Euthanasia*. SUNY Press.
5. Harvey, P. (2000). *An Introduction to Buddhist Ethics: Foundations, Values and Issues*. Cambridge University Press.
6. Coward, H., & Perkinson, J. (2013). *A Cross-Cultural Dialogue on Ethical Leadership*. Wilfrid Laurier University Press.
7. Confucius. (1998). *The Analects*. Oxford University Press.

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