**Note:** It is the student’s responsibility to read the atlas carefully. Not knowing this information is **NOT** an excuse. Failure to meet the prerequisites will result in withdrawal from class.

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**BIOLOGICAL SCIENCES**

**BIOL 101: Man and Environment**  
(4 credits)  
Only for students who have not studied biology in higher secondary school or A-level or equivalent

Life on earth revolves around the interaction of living organisms with their environment. This course emphasizes the role of plants, animals and environment as it relates to survival and welfare of mankind.

**Section A**  
Tuesday, Thursday 8:00-9:15  
Lab  
Friday 08:00-09:50  
S-410  
Dr. H. Saeed

**Section B**  
Monday, Wednesday, Friday 09:00-09:50  
Lab  
Tuesday 8:00-10:00  
S-416  
Mr. S. Cheema

**Section C**  
Tuesday, Thursday 12:30-1:45  
Lab  
Thursday 8:00-10:00  
S-425  
Mr. S. Cheema

**Section D**  
Monday, Wednesday, Friday 02:00-02:50  
Lab  
Monday 10:00-11:50  
S-410  
Dr. Aisha Khan

**BIOL 102: Introductory Plant Biology**  
(4 credits)  
Only for students who have studied biology in higher secondary school /A-level or equivalent.

This course covers the structure-function relationship of plants, basic principles of genetics and molecular genetics, as well as biotechnology and its use in modifying plants. Ecosystem, environmental issues and the relevance of flowering plants in human life are also examined.

**Section A**  
Monday, Wednesday, Friday 11:00-11:50  
Lab  
Monday 08:00-09:50  
S-416  
Dr. M. R. Siddiqi

**Section B**  
Tuesday, Thursday 11:00-12:15  
Lab  
Thursday 02:00-04:00  
S-416  
Dr. M. R. Siddiqi

**Section C**  
Monday, Wednesday, Friday 09:00-09:50  
Lab  
Tuesday, 11:00-12:50  
S-410  
Dr. M.W. Hussain

**BIOL 103: Elementary Human Biology**  
(4 credits)  
Only for students who have not studied biology in higher secondary school or A-level or equivalent

Basic human anatomy; nutrition; genetics of blood groups; genetic diseases, and effect of environment on human health.

**Section A**  
Tuesday, Thursday 12:30-01:45  
Lab  
Friday 02:-00-03:50  
S-416  
Dr. W. George

**BIOL 104: Life on Earth**  
(4 credits)  
Only for students who have not studied biology in higher secondary school or A-level or equivalent

The science of biology and its various branches. Characteristics of life, organizational levels (from biological molecules and cells to organisms), ecology and evolution, a survey of various groups of organisms and their phylogenetic relationships.

**Section A**  
Monday, Wednesday, Friday 12:00-12:50  
Lab  
Friday 02:00-03:50  
S-424  
Mr. S. Cheema

**Section B**  
Monday, Wednesday, Friday 08:00-08:50  
Lab  
Tuesday 08:00-10:00  
S-410  
Dr. F. Iqbal

**Section C**  
Tuesday, Thursday 02:00-03:15  
Lab  
Wednesday 08:00-10:00  
S-410  
Dr. H. Saeed
BIOL 105: General Zoology  (4 credits)
Only for students who have studied biology in higher secondary school or A-level or equivalent

The structure, functions, ecology and evolution of all major animal groups including invertebrates and chordates. The origin of multicellular forms and basic environmental factors affecting them.

Section A  Monday, Wednesday, Friday 08:00-08:50  S-416  Dr. K. Z. Rasib
Lab  Wednesday 10:00-11:50  S-341
Section B  Tuesday, Thursday 08:00-09:15  S-417  Dr. K. Z Rasib
Lab  Thursday 02:00-04:00  S-341

BIOL 201: Cell Biology  (3 credits)

This course will examine: the ultra structure of cell; the cell membrane, cytoskeleton, nucleus, mitochondria, chloroplast, ribosome, dictyosome, vacuole, microbodies & cell surface. Protein synthesis and secretion, chromosomal aberrations, mitosis, meiosis & cell cycle regulation will also be discussed.

Section A  Tuesday, Thursday 12:30-01:20  S-417  Dr. A Maqbool
Lab  Monday 02:00-03:50  S-331

BIOL 203: General Genetics  (3 credits)

Introduction; concept of gene; Mendelian inheritance; sex-linked inheritance; linkage and crossing over; cytoplasmic inheritance; structure, chemistry, functions and types of DNA and RNA; recombination in viruses, bacteria, fungi and eukaryotes; Operon model; transposable elements; genetic code; variation in chromosomal number and structure; population genetics; problems related to the theoretical course.

Section A  Tuesday, Thursday 02:00-02:50  S-417  Dr. M. Irfan
Lab  Wednesday 02:00-03:50  S-321

BIOL 204: Diversity in Animals  (4 credits)

General survey of animal kingdom. Classification and phylogenetic relationship of various groups of animals, with an overview of all major groups of invertebrates and chordates

Section A  Monday, Wednesday, Friday 12:00-12:50  S-417  Dr. K.Z. Rasib
Lab  Tuesday 02:00-04:00  S-341

BIOL 205: Biostatistics  (3 credits)

Introduction to statistics including mean, mode, median, standard error and standard deviation, probability and test of significance, correlation, analysis of variance, regression and experimental design.

Section A  Tuesday, Thursday 09:30-10:20  S-417  Dr. Saba Butt
Lab  Wednesday 08:00-09:50  S-321

BIOL 301: Plant Form and Function  (3 credits)

This course deals with the analysis of plant structure and function. The topics include an overview of plant organization from cell to organismic level, and an appreciation of physiological processes as they relate to the plant survival and adaptability.

Section A  Tuesday, Thursday 08:00-08:50  S-425  Dr. M. R. Siddiqi
Lab  Friday 08:00-09:50  S-331
BIOL 302: Animal Form and Function  (4 credits)
Comparison of animals with one another. Similarities and differences among the major phyla of animal kingdom. External and internal variations in organs and systems; adaptations that enable them to live successfully in their respective environments.
Section A  Monday, Wednesday, Friday 10:00-10:50  S-410  Dr. W. George
Lab  Wednesday 08:00-09:50  S-341

BIOL 303: General Ecology  (3 credits)
The primary objective of this course is the elucidation of basic principles of ecology such as interaction of organisms with their environment, species and population dynamics, community structure and human interactions with natural populations and ecosystems. Emphasis will be on local environment, flora and fauna.
Section A  Tuesday, Thursday 9:30-10:20  S-410  Dr. H. Saeed
Lab  Monday 08:00-09:50  S-321

BIOL 313: Biochemistry  (4 credits)
Prerequisite for non-science students: CHEM 110
The course is designed to provide solid understanding of organic structure of living systems. The topics include chemistry, structure, specific roles of carbohydrates, lipids, amino acids, protein and nucleic acids. General characteristics and properties of enzymes including enzyme kinetics will also be covered.
Section A  Tuesday, Thursday 11:00-12:15  S-410  Dr. K.Shoaib
Lab  Friday 02:00-03:50  S-331

BIOL 315: Fundamentals of Microbiology  (3 credits)
This course deals with the study of microbial life and its function using pure culture techniques, microscopy, bacterial morphology, anti-microbial resistance and their applications in industry, biotechnology, environmental science and basic research.
Section A  Tuesday, Thursday 11:00-11:50  S-417  Dr. Saba Butt
Lab  Friday 02:00-03:50  S-329

BIOL 402: Limnology  (4 credits)
Prerequisite: BIOL 302
Concepts of inland water bodies, physio-chemical characteristics of water bodies including light, heat, hydrological, temperature and thermal stratification. Types of inland water bodies and their ecosystems. Nutrients status (nitrogen and phosphorus cycles) trophic level and food web. Aquatic organisms and their diversity, status of productions (primary, secondary and tertiary) and comparative review of different lakes (tropical and temperate regions)
Section A  Tuesday, Thursday 08:00-09:15  S-416  Dr. W. George
Lab  Monday 08:00-09:50  S-341
BIOL 499: Research (6 credits)

Students with CGPA 2.75 or above will be eligible for research.

BIOT 201: Introduction to Biotechnology (3 credits)

Brief history of biotechnology, different aspects of biotechnology and its future development as a cornerstone in human welfare.

Section A
Monday, Wednesday, 10:00-10:50
S-424
Dr. M. Irfan

Lab
Wednesday 08:00-09:50
S-331

BIOT 202: Protoplast, Cell & Tissue Culture (4 credits)


Section A
Monday, Wednesday, Friday 11:00-11:50
S-417
Dr. K. Shoaib

Lab
Tuesday 02:00-04:00
S-331

BIOT 301: Analytical Techniques in Biology (3 credits)

The course includes fundamental techniques in Biological Sciences involving a vast array of methodologies that a research needs to understand. It includes various types of Chromatographies, Gel Electrophoresis, Staining procedures, Spectrophotometry, Microtomry and Microscopy.

Section A
Tuesday, Thursday 08:00-08:50
S-424
DR. K. Shoaib

Lab
Monday 08:00-09:50
S-329

BIOT 305: Commercialization of Biotechnology Products (3 credits)

An overview of commercial products and services that biotechnology offers. General aspect related to the quality control and criterion for industrially important bioprocesses: their management and impact on the present day market. Resource planning and management of bio-inoculants; antimicrobial agent; metabolites, enzymes and therapeutic proteins Biotechnology and intellectual property right. Industry interaction and technology transfer products. Steps involved in commercialization of biotechnological merchandise.

Section A
Monday, Wednesday 12:00-12:50
S-416
Dr. K.A Malik

Lab
Wednesday 02:00-03:50
S-329

BIOT 307: Molecular Immunology (3 credits)

Introduction to immunology the basic processes involved in triggering immune system and rendering it resistant or susceptible to different infections. The study of molecular and biochemical events that influence immune responses. This course also includes: Innate (Non-specific) and adaptive (Specific) immunity, immunoglobulins structure and functions, antigens, antibody formation and hypersensitivity.

Section A
Monday, Wednesday 10:00-10:50
S-417
Dr Lesyle Johnson

Lab
Tuesday 02:00-04:00
S-329
BIOT 313: Molecular Biology (4 credits)
Prerequisite: BIOL 201
History, structure and function of DNA, DNA replication in prokaryotes and eukaryotes, structure, function and types of RNA, transcription, post transcriptional processing, translation, post translational processing in prokaryotes and eukaryotes, control of gene regulation in prokaryotes and eukaryotes, mutation and mutagens, DNA damage and repair, recombination and transposable elements.
Section A  Monday, Wednesday, Friday 10:00-10:50  S-416  S-321
  Lab  Tuesday  02:00-04:00  Dr. A. Maqbool

BIOT 314: Bionergetics and Metabolism (3 credits)
Prerequisites: BIOL 313
This course covers intermediate metabolism in biological systems. Pathways of breakdown and synthesis of biological molecules such as carbohydrates, lipids and nitrogenous compound will be examined. Emphasis will be placed on the thermodynamics of the reactions and the regulatory mechanism of pathways.
Section A  Monday, Wednesday 12:00-12:50  S-410  Dr. Aisha Khan
  Lab  Friday  08:00-10:00  S-321

BTNY 403: Plant Physiology (3 credits)
Prerequisites for non-science students BIOL 301
Application of physical and biological principles to the understanding of plant processes involved in assimilation, metabolism and regulation of growth and development.
Section A  Tuesday, Thursday 12:30-01:20  S-410  Dr Aisha Khan
  Lab  Thursday  02:00-04:00  S-329

BTNY 463: Palaeopalynology (4 credits)
Prerequisite for non-biology students BIOL 202
Introduction, scope and importance with emphasis on geological time scale. Rock type polymorphs in oil and gas exploration, geochronology. Vegetational analysis from pollen data, stratogeographic leak, post depositional alteration of palynomorphs, coal formation and classification of Gondwanaland palynofloristics.
Section A  Monday, Wednesday, Friday 11:00-11:50  S-410  Dr. F. Iqbal
  Lab  Monday  02:00-03:50  S-329

ENVR 304: Environment and Biodiversity of Pakistan (3 credits)
Studies ecological science relevant to sustaining population, species, ecosystems and the global biosphere. Includes discussion of genetic inbreeding, critical population size, community structure and organization, maintenance of critical ecosystem function and global biogeochemistry. Case studies from around the world demonstrate links between human-driven environmental change and health of the biosphere, at all levels, from the organism to the planet.
Section A  Monday, Wednesday 10:00-10:50  S-425  Mr. S. Cheema
  Lab  Monday  02:00-03:50  S-341
ENVR 406: Climate, Past, Present and Future (3 credits)

Climate-definition, early climates, factor controlling the climates; major climatic turnovers during Paleozoic, Mesozoic and Cenozoic eras. Pleistocene ice age, Sub recent and recent climate, Tropical, Temperate and Arctic Climates; Palaeomagnetic calendar; role of climatic factors in shaping, generating and controlling evolutionary forces; major climatic upheavals in the subcontinent and their signatures in the out crops; future climatic trends.

Section A             Tuesday, Thursday 02:00-2:50       S-416               Dr. F. Iqbal
Lab                  Wednesday 02:00-04:00             S-331

ZOOL 303: Animal Physiology and Endocrinology (4 credits)
Prerequisite BIOL 302


Section A             Monday, Wednesday, Friday 11:00-11:50   S-424               DR. Saba Butt
Lab                  Friday 08:00-09:50                          S-341

ZOOL 403: Ichthyology (4 credits)
Prerequisite BIOL 302

Aspects of knowledge related to fish, fish groups, comparative fish anatomy and physiology (ten body systems), ecology and ichthyogeography, fish behavior and phylogenetic relationships.

Section A             Tuesday, Thursday 9:30-10:45          S-416               DR. W.George
Lab                  Wednesday 02:00-03:50                          S-341

ZOOL 408: Entomology (4 credits)
Prerequisite BIOL 302

Origin of insects, morphology, anatomy, natural habitat, social behavior, appendages, life histories and economic importance. Biological control of pests.

Section A             Tuesday, Thursday 12:30-01:45          S-424               Dr. K.Z. Rasib
Lab                  Monday 02:00-03:50                             S-321
BUSINESS MANAGEMENT

BUSN 101: Principles of Financial Accounting (3 credits)
Understanding of accounting records, entering transactions, applying accounting concepts, principles and practices; reading financial statements
Section A Tuesday, Thursday 03:30-04:45 E-105 Mr. Bilal Awan

BUSN 121: Microeconomics (3 credits)
Fundamentals of economics including price theory and applications, industry and market structure, equilibrium analysis and welfare economics.
Section A Tuesday, Thursday 08:00-09:15 E-105 TBD
Section B Tuesday, Thursday 09:30-10:45 E-105 TBD

BUSN 160: Management Communications (3 credits)
Introduction to verbal and written communication theory and practice. Focus on individual oral and written skills in letter and memo writing, use of emails, presentations and preparing reports.
Section A Tuesday, Thursday 11:00-12:15 E-105 Mr. Zeeshan Bhutta
Section B Tuesday, Thursday 12:30-01:45 E-105 Mr. Zeeshan Bhutta

BUSN 225: Economic Applications for Business (3 credits)
Prerequisites: BUSN 121
This course exposes students to fiscal, monetary and regulatory policy frameworks including deregulation and liberalization from a perspective of application of theory to real world practices.
Section A Tuesday, Thursday 11:00-12:15 E-104 Dr. Michael Murphy
Section B Tuesday, Thursday 12:30-01:45 E-104 Dr. Michael Murphy

BUSN 230: Entrepreneurship (3 credits)
Prerequisite: BUSN 170
This course develops an understanding of entrepreneurship and entrepreneurial skills for successful formation and growth of companies, including topics like team formation, concept generation, design thinking, marketing mix, etc.
Section A Tuesday, Thursday 02:00-03:15 E-104 Mr. Mannan Amin
Section B Tuesday, Thursday 03:40-04:45 E-104 Mr. Mannan Amin

BUSN 250: Individual & Group Dynamics (3 credits)
Prerequisite: BUSN 170
Investigates the impact of individuals, groups and structures on behavior within a format organizational context and applies knowledge to improve the effectiveness of the organization. Concepts include leadership skills, team structures, managing interpersonal relationships and conflicts.
Section A Tuesday, Thursday 08:00-09:15 E-104 Mr. Zeeshan Bhutta
Section B Tuesday, Thursday 09:30-10:45 E-104 Mr. Zeeshan Bhutta
BUSN 305: Corporate Governance  
(3 credits)  
Prerequisite: BUSN 201

This course focuses on the critical issue of governance in corporations, spanning questions related to regulation, fiduciary responsibility, agency problems and the structures and systems which can be used to improve governance in organizations.

Section A  
Tuesday, Thursday 11:00-12:15  
E-103  
Mr. Bilal Awan

BUSN 322: Financial Management II  
(3 credits)  
Prerequisite: BUSN 321

This is an advanced finance course which focuses on issues of corporate finance, dividend policy capital structure, international financial instruments, debt and equity valuation and the role of hybrid securities.

Section A  
Tuesday, Thursday 02:00-03:15  
E-103  
Dr. Bashir Ahmad Khan

BUSN 361: Operations & Project Management II  
(3 credits)  
Prerequisite: BUSN 360

This is more advanced level course in operations and permits students to feel more comfortable with the concepts and apply these skills in a production-related environment resulting in better work flow.

Section A  
Tuesday, Thursday 12:30-01:45  
E-103  
Mr. Mehryar Salim

BUSN 368: Productivity & Plant Management  
(3 credits)  
Prerequisite: BUSN 360

This course introduces critical operational processes within manufacturing processes by focusing on optimal utilization of plant and equipment with the objective of improving profitability.

Section A  
Tuesday, Thursday 02:00-03:15  
E-332  
Mr. Mehryar Saleem

BUSN 370: Management Information System  
(3 credits)  

Basic concepts of MIS, including business and accounting applications of MIS; techniques for evaluating and implementing various management information systems in an organization.

Section A  
Tuesday, Thursday 08:00-09:15  
E-103  
Mr. Sufian Mazhar

Section B  
Tuesday, Thursday 09:30-10:45  
E-103  
Mr. Sufian Mazhar

BUSN 382: Marketing Communications  
(3 credits)  
Prerequisite: BUSN 280

This course looks at marketing channels, such as advertising and promotion management and how organizations can use diverse means to promote and project products and brands.

Section A  
Tuesday, Thursday 03:30-04:45  
E-103  
Ms. Syma Ahmad
BUSN 385: Consumer Behavior: (3 credits)
Prerequisite: BUSN 280
This course introduces the terms, definitions, concepts and current trends and applies them to solve real
world marketing challenges. It allows students to use this knowledge to develop effective.

Section A  Tuesday, Thursday 02:00-03:15  E-105  Ms. Irtifa Nasir

BUSN 410: Accounting Information systems (3 credits)
Prerequisite: BUSN 201
This course looks at the complementarity and application of information technology to accounting,
including the development of systems and software for the profession.

Section A  Tuesday, Thursday 08:00-09:15  E-332  Mr. Abrar Jamil

BUSN 469: Project Management Processes (3 credits)
Prerequisite: BUSN 360
Project management is an essential area for production managers. This course looks at the tools required
to coordinate the different activities which result in timely completion of projects.

Section A  Tuesday, Thursday 03:30-04:45  E-332  Dr. Farid A Malik

BUSN 485: E-Business (3 credits)
Prerequisite: BUSN 280
This course looks at the application of technology in the business world. The course shows how the use
of the electronic media has opened new channels for developing businesses, as well as promoting
products and services.

Section A  Tuesday, Thursday 11:00-12:15  E-332  Mr. Sufian Mazhar

BUSN 490: Analysis of Institutions (3 credits)
This course examines those institutions in the public, private and not-for-profit sectors which have
shaped the economic and corporate environment of Pakistan. The course combines economic history
with public policy, providing students with knowledge of how the interaction of different institution has
shaped Pakistan as a country.

Section A  Tuesday, Thursday 09:30-10:45  E-025  Ms. Ayesha Naweed

BUSN 498: Business Strategy (3 credits)
Only for final year business students
Students are introduced to the theories and concepts of strategy. They are provided with an opportunity
for simulating real world problems and applying theories to practice through projects.

Section A  Tuesday, Thursday 12:30-01:45  E-025  Mr. Mannan Amin
CHEMISTRY

CHEM 100: Introduction to Chemistry (4 credits)
Only open to students who have not taken chemistry at the F.Sc. and A-Level.

Introduction to various branches of Chemistry, inorganic, organic and physical chemistry, fundamental concepts and their application in daily life including elements, compounds and mixture. Chemical reactions, stoichiometry and acid-base concepts.

Section A  Monday, Wednesday, Friday 08:00-08:50  S-215  Dr. Saeed Iqbal
Lab  Tuesday 08:00-09:50  S-138

Section B  Tuesday, Thursday 08:00-09:15  S-215  Mrs. Shazma Azeem
Lab  Monday 08:00-09:50  S-138

CHEM 110: Introduction to Inorganic Chemistry (4 credits)
Prerequisite: F.Sc or A-level Chemistry

Introduction to the foundations of Chemistry including electronic structure of atoms, ions and molecules, quantum numbers, periodic classification, chemical bonding and theories i.e. VBT, MOT for simple homonuclear and diatomic heteronuclear molecules, VSEPR theory and shape of molecules; Chemical equilibria; acid-base chemistry and redox reactions and electrochemical series.

Section A  Monday, Wednesday, Friday 11:00-11:50  S-215  Dr. M. N. Asghar
Lab  Thursday 09:30-11:00  S-138

Section B  Tuesday, Thursday 11:00-12:15  S-215  Mrs. Shazma Azeem
Lab  Monday 10:00-11:50  S-138

CHEM 114: Introduction to Organic and Biochemistry (4 credits)
Prerequisite: F.Sc or A-Level Chemistry

Chemistry of carbon, introduction to functional groups inter-conversion; study of hydrocarbons; study of hydrocarbons including additions to multiple bonds and substitution reactions of benzene; chemistry of food and its components including carbohydrates, proteins, lipids, vitamins and minerals.

Section A  Monday, Wednesday, Friday 09:00-09:50  S-216  Dr. M. Ikram Aujla
Lab  Thursday 08:00-09:50  S-135

Section B  Monday, Wednesday, Friday 03:00-03:50  S-216  Dr. Seemal Jelani
Lab  Tuesday 2:00-3:50  S-135

CHEM 117: Chemistry I (4 credits)
Prerequisite: F.Sc or A-Level Chemistry or Chem 100

Thermochemistry and related concepts, quantum numbers, gases, molecules forces, liquids and some of their physical properties, solids, Bragg's law, packing types and geometry of solids, miller indices, introduction to chemical kinetics.

Section A  Monday, Wednesday, Friday 03:00-03:50  S215  Dr. Athar Yasin
Lab  Tuesday 02:00-03:50  S-148
CHEM 221: Quantitative Analysis (4 credits)
Prerequisite: CHEM 110 OR CHEM 114 OR CHEM 117

Sample handling error analysis and statistical treatment of data. Solutions and standardization, measurement and calculations relevant to volumetric and gravimetric analysis, homogenous equilibria (acid base, oxidation-reduction and complexometry) heterogenous equilibria (gravimetric analysis, precipitation titration). Various chromatographic techniques.

Section A
- Tuesday, Thursday 02:00-03:15
- S-215
- Mrs. Shazma Azeem

Lab
- Monday 02:00-03:50
- S-138

CHEM 240: Principles of Organic Chemistry (4 credits)
Prerequisite: CHEM 110 OR CHEM 114 OR CHEM 117

Discussion of properties and reactions of various functional groups using reaction mechanisms as a unifying theme. Emphasizes practical applications using industrial, environmental, current events and biological/medicinal examples.

Section A
- Tuesday, Thursday 11:00-12:15
- S-216
- Dr. Seemal Jelani

Lab
- Wednesday 10:00-11:50
- S-135

CHEM 241: Organic Chemistry II (4 credits)
Prerequisite: CHEM 100 or 110 or 114

A review of covalent bonding and hybrid orbital, inter-conversion of functional groups leading to synthesis of various compounds; resonance and inductive effects; organic acids and bases; stereochemistry including conformational analysis, geometric isomerism, and stereo specificity and stereo selectivity.

Section A
- Monday, Wednesday, Friday 10:00-10:50
- S-216
- Dr. M. Ikram Aujla

Lab
- Thursday 08:00-09:50
- S-135

CHEM 301: Organic Chemistry 1 (4 credits)
Prerequisites: CHEM 241

Organic synthesis basic concepts and scope, retro synthetic, Multi-step synthesis functional group protection, viable synthetic routes, yield consideration, real world examples and challenges and applications.

Section A
- Monday, Wednesday, Friday 12:00-12:50
- S-216
- Dr. Dildar Ahmed

Lab
- Thursday 11:00-12:30
- S-135

CHEM 308: Industrial Chemistry (4 credits)
Prerequisite: CHEM 100 or 110 or 114

Characteristics and importance of chemical industries, conversion efficiency and yield, rationalization, economic and technical feasibilities, fertilizers, acids, bases, glass, cement, ceramics, leather, and metallurgies of important metals.

Section A
- Tuesday, Thursday 09:30-10:45
- S-215
- Dr. S. E. Benjamin

Lab
- Friday 10:00-11:50
- S-138
CHEM 310: Biochemistry (4 credits)
Prerequisite: CHEM 240 OR 241

Detailed structure and physiological function of primary metabolites including carbohydrates, proteins, lipids, nucleic acids and nature and role of enzymes and coenzymes in living organisms.

Section A
Monday, Wednesday, Friday 02:00-02:50 S-216 Dr. M. Ikram Ajula

Lab
Tuesday 11:00-12:30 S-135

CHEM 331: Chemistry of Main Group Elements (4 credits)
Prerequisite: CHEM 110 OR 114

Chemistry of S and P Block elements with emphasis on lithium and beryllium, boron and aluminum, carbon and silicon, nitrogen and phosphorus and oxygen and sulphur families including halogens and zero group elements.

Section A
Tuesday, Thursday 09:30-10:45 S-216 Dr. Christy Munir

Lab
Monday 10:00-11:50 S-138

CHEM 333: Chemistry of Natural Waters (4 credits)
Prerequisites: CHEM 110 or 114

Sources of water, impurities in water, hard and soft water and removal of hardness by different methods, treatment of boiler water, boiler troubles and prevention, caustic embrittlement, ion exchangers, waste water treatment, WHO’s drinking water standards.

Section A
Monday, Wednesday, Friday 8:00-8:50 S-216 Dr. Seemal Jelani

Lab
Monday 10:00-11:50 S-135

CHEM 351: Physical Chemistry I- Thermodynamics and Electrochemistry (4 credits)
Prerequisite: CHEM 218

The kinetic theory of gases, distribution of molecular velocities, mean free path, critical phenomena, equation of state, advanced concepts in thermodynamics, advanced concepts in electrochemistry, phase rule and phase diagrams.

Section A
Monday, Wednesday, Friday 8:00-8:50 S-116 Dr. Asad Khan

Lab
Monday 10:00-11:50 S-135

CHEM 352: Physical Chemistry II-Kinetics and Quantum Mechanics (4 credits)
Prerequisite: CHEM 351

Kinetics and mechanisms of chemical reactions, theories of reaction rates, quantum mechanisms, Schrödinger wave equation, particles in one dimension box, rigid rotor, quantum numbers and their derivation, Atomic and molecular spectroscopy and its application in structure determination.

Section A
Monday, Wednesday, Friday 11:00-11:50 S-216 Dr. Athar Yasin

Lab
Thursday 11:00-12:30 S-148
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<th>Description</th>
<th>Section A Details</th>
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<tbody>
<tr>
<td>CHEM 362</td>
<td>Analytical Chemistry</td>
<td>4 credits</td>
<td>CHEM 110 or 114</td>
<td>Introduction to analytical techniques and spectrochemical methods of analysis, ultraviolet, infrared, mass spectroscopy, nuclear magnetic resonance spectroscopy, and scope of analytical methods in everyday chemistry (clinical, agriculture, pharmaceuticals etc.)</td>
<td>Monday, Wednesday, Friday 12:00-12:50 S-215</td>
<td>S-138</td>
<td>Dr. M. N. Asghar</td>
</tr>
<tr>
<td>CHEM 409</td>
<td>Textile Chemistry</td>
<td>4 credits</td>
<td>CHEM 241</td>
<td>Chemistry of dyes and fibers, theoretical aspects of dyeing dyes for cellulosic fibers, for synthetic fibers and dyeing of fibers blends.</td>
<td>Tuesday, Thursday 02:00-03:15 S-216</td>
<td>S-148</td>
<td>Dr. Seemal Jelani</td>
</tr>
<tr>
<td>CHEM 431</td>
<td>Inorganic Chemistry II</td>
<td>4 credits</td>
<td>CHEM 331</td>
<td>Chemistry of transition elements, general characteristics, nomenclature, various theories and their applications, chemistry of carbonyl and nitrosyl compounds.</td>
<td>Monday, Wednesday, Friday 9:00-09:50 S-215</td>
<td>S-138</td>
<td>Dr. Saeed Iqbal</td>
</tr>
<tr>
<td>CHEM 451</td>
<td>Advanced Physical Chemistry</td>
<td>4 credits</td>
<td>CHEM 352</td>
<td>Selected topics in Molecular Orbital Theory, Atomic and Molecular spectroscopy statistical Thermodynamics and Photochemistry</td>
<td>Tuesday, Thursday 12:30-1:45 S-216</td>
<td>S-148</td>
<td>Dr. Athar Yasin</td>
</tr>
<tr>
<td>CHEM 461</td>
<td>Polymer Science</td>
<td>4 credits</td>
<td>CHEM 241</td>
<td>Chemistry of Polymers including classification, properties, structure, characterization and modification, degradation and recycling kinetics and mechanism of polymerization reactions and modern applications.</td>
<td>Tuesday, Thursday 12:30-01:45 S-215</td>
<td>S-148</td>
<td>Dr. Asad Khan</td>
</tr>
<tr>
<td>CHEM 463</td>
<td>Advanced Analytical Chemistry</td>
<td>4 credits</td>
<td>CHEM 362</td>
<td>Atomic absorption and Emission Spectroscopy, Potentiometry and Conductometry Potentiometric and Conductometric titrations.</td>
<td>Monday, Wednesday, Friday 02:00-02:50 S-215</td>
<td>S-138</td>
<td>Dr. M. N. Asghar</td>
</tr>
</tbody>
</table>
CHEM 471: Chemical Principles in Biology (4 credits)
Prerequisite: CHEM 310

*Emphasis on the interconnections between Biology and Chemistry, and underlying chemical logic of biomolecules and metabolic pathways*

Section A  Monday, Wednesday, Friday 10:00-10:50  S-215  Dr. G. Johnson
Lab  Wednesday 08:00-09:50  S-148

CHEM 481: Natural Products and Medicinal Chemistry (4 credits)
Prerequisite: CHEM 241 and CHEM 362 or CHEM 441

*Natural products as secondary metabolites: definition, classification and their medicinal importance; a general review and advances in terpenoids, alkaloids, flavonoids, and steroids focusing on isolation techniques; structural elucidation; physiological activities.*

Section A  Tuesday, Thursday 08:00-09:15  S-216  Dr. Dildar Ahmed
Lab  Monday 08:00-09:50  S-135
COMPUTER SCIENCE / IT

CSCS 100: Introduction to Computing  (3 credits)

An introduction to the computer science discipline, including an introduction to computing environments, general application software, computing hardware, operating systems, desktop publishing, internet, software applications and tools and computer usage concepts; introducing software engineering and information technology within the broader domain of computing. **Not open to students registered in the BS(Computing) program.**

Section A  Monday 8:00-09:50  S-319  TBD
            Wednesday 8:00-08:50
Section B  Wednesday 9:00-09:50  S-319  Mr. Ghulam Murtaza
            Friday 8:00-09:50
Section C  Monday 10:00-11:50  S-319  Ms. Rabea Aden
            Wednesday 10:00-10:50
Section D  Wednesday 11:00-11:50  S-319  Mr. Asher Imtiaz
            Friday 10:00-11:50
Section E  Monday 02:00-03:50  S-319  Mr. Ghulam Murtaza
            Wednesday 2:00-02:50
Section F  Wednesday 03:00-03:50  S-319  TBD
            Friday 2:00-03:50
Section G  Tuesday, Thursday 09:30-10:45  S-319  Ms. Zahra Shah
Section H  Tuesday, Thursday 11:00-12:15  S-319  Ms. Saira Anwar

COMP 102: Programming I  (3 credits) (2 + 2)

Introduces students to the basic skills of problem solving and programming. It emphasizes problem analysis, algorithm design, program development and testing. It provides a solid foundation in structured design techniques and introduces the object oriented thought process and basic tools.

Section A  Tuesday, Thursday 08:00-09:50  S-218  Ms. Saira Anwar

COMP 111: Programming II  (3 credits) (2 + 2)

Prerequisite:  COMP 102

Continues the topics begun in COMP 102, shifting the emphasis to object oriented principles and techniques. Classes, inheritance and class hierarchy and polymorphism are fully explored and basic data structures are introduced. Other topics include an overview of programming language principles, simple analysis of algorithms, basic searching and sorting techniques, and an introduction to software engineering issues.

Section A  Monday, Wednesday 8:00-9:50  S-218  Ms. Rabea Aden
Section B  Tuesday, Thursday 02:00-3:50  S-218  Mr. Numan Sheikh
COMP 113: Discrete Mathematics (3 credits)
Prerequisite: MATH 101 or A-Level or Intermediate Mathematics

Introduces the foundations of discrete mathematics as they apply to Computer Science, focusing on providing a solid theoretical foundation for further work. Further, this course aims to develop understanding and appreciation of the finite nature inherent in most Computer Science problems and structures through study of combinatorial reasoning, abstract algebra, iterative procedures, predicate calculus, tree and graph structures.

Section A  Monday, Wednesday, Friday 09:00-09:50  S-317  Mr. Numan Sheikh

COMP 200: Data Structures and Algorithms (3 credits) (2 + 2)
Prerequisite: COMP 111, COMP 113

This course introduces more sophisticated data structures, along with the algorithms required to manipulate them. In it the selection or construction of suitable data structures for a wide range of problems is emphasized, along with an analysis of the efficiency of chosen solutions. Standard problems such as sorting and searching are explored in detail. Students are exposed to the concepts of time and space complexity of computer programs.

Section A  Tuesday, Thursday 10:00-11:50  S-218  Mr. Bilal Bajwa

COMP 205: Introduction to Information Technology (3 credits)
Prerequisite: COMP 102, STAT 102


Section A  Tuesday, Thursday 12:30-01:45  S-317  Mr. Shahid Mahmood

Comp 206: Hardware logic and design (3 credits) (2+2)
Prerequisite: MATH 101 or A-Level or Intermediate Mathematics

This course is designed to introduce students to the fundamentals of hardware system design, beginning at the digital level with bits, binary representations, and basic binary operations. These are represented for hardware purposes using logic gates, and built up into combination and then sequential logic circuits. Basic functional units are assembled from these circuits, and then combined to provide higher level computing functions. One or more hardware description languages are introduced to allow well structured descriptions of hardware circuitry. The basics of an assembly language are introduced to discuss the function and organization of the units in a disciplined way. Basic elements of some real-life architectures are examined.

Section A  Tuesday, Thursday 10:00-11:50  S-120  Mr. Amjad Hussain Zahid

COMP 213: Database Systems (3 credits) (2 + 2)
Prerequisite: COMP 200

This course introduces basic concepts of databases, various data models, data storage and retrieval techniques, and database design techniques. The major emphasis will be on the relational data model, the relational algebra as a basis for queries in SQL, and normalization techniques to optimize database structure.

Section A  Monday, Wednesday 10:00-11:50  S-218  Mr. Shahid Mahmood
COMP 220: Software Engineering I (3 credits)
Prerequisite: COMP 111

This course introduces the basics of Software Engineering, the terminologies involved and various principles, methods, tools and techniques used to produce quality software. Two fundamental approaches of software engineering, structural and object oriented are introduced. Based on the structural approach various software development models and phases of software development life cycle are described. Various techniques used for requirements engineering, system/software design, implementation, and testing are introduced. Fundamental issues of software measurement and project management are discussed.

Section A  Monday, Wednesday, Friday 12:00-12:50  S-319  Ms. Zahra Shah

COMP 301: Operating Systems (3 credits)
Prerequisite: COMP 200, COMP 206

The objective of this course is to give students knowledge of construction and working of operating systems, and to enable students to understand the management and sharing of computer resources, communication and concurrency and develop effective and efficient applications and also to appreciate the problems and issues regarding multi-user, multitasking, and distributed systems.

Section A  Monday, Wednesday, Friday 10:00-10:50  S-120  Dr. Iftikhar Hussain Shah

COMP 311: Computer Networks (3 credits)
Prerequisite: COMP 205, COMP 301

The course will briefly introduce the engineering concepts underlying computer communication, including analogue and digital transmission, circuit switching and packet switching. Logical network structure and operation including network layers, network models, (OSI, TCP/IP) and protocol standards will be a central theme. Emphasis is given to the understanding of modern network concepts.

Section A  Monday, Wednesday, Friday 12:00-12:50  S-120  Mr. Asher Imtiaz

COMP 400: Senior Project (6 credits, 2 semesters, 3 credits each semester)
Prerequisite: COMP 213, COMP 220, Senior standing

The senior project requires students over the course of two semesters to research, conceive, plan and develop a real and substantial project related to computer science. It provides an opportunity to the student to realize his or her acquired professional competence in the form of a demonstrable software product or other tangible result. The student must also make an oral and written project presentation.

Section A  Monday, Wednesday 1:00-01:50  S-120  TBD

CSCS 303: Design and analysis of Algorithms (3 credits)
Prerequisites: COMP 200

A detailed study of the basic notions of the design of algorithms and the underlying data structures. Several measures of complexity are introduced. This course emphasizes the structure, complexity and efficiency of algorithms.

Section A  Tuesday, Thursday 11:00-12:15  S-317  Mr. Numan Sheikh
CSCS 323: Computer Organization with Assembly Language (3 credits)
Prerequisite: COMP111, COMP 206

To introduce the organization of computer systems and usage of assembly language for optimization and control. Emphasis is given to expose the low-level logic employed for problem solving while using assembly language as a tool. At the end of the course the student should be capable of writing moderately complex assembly language Subroutines and interfacing them to any high level language.

Section A  Monday, Wednesday 02:00-03:15  S-218  Dr. Iftikhar Hussain Shah

CSCS 451: Compiler Construction (3 credits)
Prerequisite: CSCS 302

It focuses on the organization of compilers, lexical and syntax analysis. Parsing techniques. Object code generation and optimization, detection and recovery from errors. Contrast between compilers and interpreters.

Section A  Monday, Tuesday, Wednesday 12:00-12:50  S-218  Mr. Amjad Hussain Zahid

CSCS 457: Computer Vision (3 credits)
Prerequisite: CSCS 350, MATH 103

Introduces the theory and application of Computer Vision, and provides a broad overview (breadth) of current problems and techniques in Computer Vision. Demonstrates several simple applications in which Computer Vision techniques are useful. Familiarizes students with complete Computer Vision systems, and show how different components interact in a complete system. Makes students confident that they can write programs to solve Computer Vision problems, through the use of several programming assignments and examples. Gives examples of some current research approaches in Computer Vision.

Section A  Monday, Wednesday, Friday 10:00-10:50  S-120  Ms. Zahra Shah

CSCS 463: Distribution Database System (3 credits)
Prerequisite: COMP 213, COMP 311


Section A  Monday, Wednesday, Friday 02:00-02:50  S-120  Mr. Amjad Hussain Zahid

CSCS 464: Visual Programming (3 credits)
Prerequisite: COMP 200


Section A  Tuesday, Thursday 12:30-1:45  S-319  TBD
CSIT 210: Introduction to Multimedia  
**Prerequisite:** CSCS 100 or COMP 205  

An introduction to multimedia, which covers the different media types and their uses, surveys the range of applications of multimedia, and introduces students to a selection of tools available for the production of multimedia applications. It includes hands-on practice in the production of simple multimedia applications. Accessible to students in a variety of disciplines where multimedia is used.

Section A  
Tuesday, Thursday 08:00-09:15  
S-319  
Ms. Rabea Aden

CSIT 301: Web Application Developed  
**Prerequisite:** COMP 205, COMP 213,220  

This course addresses the concepts, methods, technologies, and techniques of developing Web applications that collect, organize and expose information resources. Topics covered include Web application architectures, design methods and technologies, interface design, usability of Web applications, accessibility, testing metrics, operation, deployment and maintenance of Web applications and security. It will prepare students for both current and future Web technologies.

Section A  
Tuesday, Thursday 2:00-03:15  
S-319  
TBD

CSIT 311: Network Management and Security  
**Prerequisite:** COMP311  

An overview of data communication and network management and security.

Section A  
Tuesday, Thursday 12:30-02:00  
S-218  
Mr. Ghulam Murtaza

CSIT 450: Technology Management  
**Prerequisite:** COMP 205, COMP 220  

An introduction to technology strategy, corporate strategy, technology transfer, technology strategy development, product development strategy and the innovation process.

Section A  
Monday, Wednesday, Friday 11:00-11:50  
S-317  
Mr. Bilal Bajwa

CSSE 301: Software Engineering II  
**Prerequisite:** COMP 220  

The course provides the basis of the object oriented approach to software engineering, and basic concepts of agile methodologies, risk management, configuration management, re-engineering and quality assurance. The focus of this course is on UML based development of artifacts which include domain models, system sequence diagrams, contracts, real use cases, interaction diagrams supported by GRASP patterns, and class diagrams.

Section A  
Tuesday, Thursday 08:00-09:15  
S-317  
Mr. Bilal Bajwa

CSSE 313: Software Requirements Engineering  
**Prerequisite:** COMP 220  

A study of the role of requirements engineering within the software life cycle. Compare, contrast and evaluate structured, object-oriented, data-oriented and formal approaches to requirements analysis. How to gather the requirements from a customer necessary to develop the specifications and software, given a “customer” who wants a software system to be developed for him.

Section A  
Monday, Wednesday, Friday 8:00-08:50  
S317  
Ms.Saira Anwar
CSSE 351: Software Quality Assurance  (3 credits)
Prerequisite: CSSE 301

A study of how to assure quality and verify it and of the need for a culture of quality, avoidance of errors and other quality problems; inspections and reviews; testing verification and validation techniques; process assurance vs. product assurance quality process standards; products and process assurance; problem analysis and reporting statistical approaches to quality control.

Section A  Monday, Wednesday, Friday 3:00-03:50  S-317  Mr. Shahid Mahmood

CSSE 401: Software Design and Architecture  (3 credits)
Prerequisite: CSSE 350

An in-depth look at software design. Continuation of the study of design patterns, frameworks, and architectures. Survey of current middleware architectures. Enables students to distinguish problems of programming-in-large from problems in programming-in-small. The course covers SW architecture business cycle, architecture styles through case studies, quality attributes of architecture, documentation of software architecture, formal models and specifications, component-based design, and architecture anti-patterns.

Section A  Tuesday, Thursday 09:30-10:45  S-317  Dr. Iftikhar Hussain Shah
ECONOMICS

ECON 100: Basic Economics (3 credits)
This is a basic course of Economics for all disciplines, which would educate students about micro, as well as macro economics. The course shall help students to increase understanding about basic concepts of Economics such as demand, supply, allocation of resources, opportunity cost, national income inflation and unemployment, etc.

NOTE: This course is not counted towards major in economics.

Section A  Monday, Wednesday, Friday 8:00-08-50  E-214  Mr. Abdul Jalil
Section B  Monday, Wednesday, Friday 10:00-10:50  E-214  Ms. Zeresh Mall
Section C  Monday, Wednesday, Friday 12:00-12:50  E-214  TBD
Section D  Monday, Wednesday, Friday 09:00-09:50  E-221  Mr. Rizwan Ahmad

ECON 101: Microeconomics I (3 credits)
Microeconomics I is a core course for majoring in Economics. It introduces the students to the basic method and subject matter of microeconomics. The course covers consumer behavior, producer theory and output and price strategies under perfect and imperfect competition market structure.

NOTE: An important objective of the course is to provide a base for other courses to be taken to major in economics.

Section A  Tuesday, Thursday 02:00-03:15  E-214  Ms. Zeresh Mall
Section B  Tuesday, Thursday 09:30-10:45  E-221  TBD
Section C  Monday, Wednesday, Friday 11:00-11:50  E-214  Dr. Shabib Haiders Syed

ECON 102: Macroeconomics I (3 credits)
This primary goal of this course is to introduce key macroeconomics concepts. This course emphasizes national income accounting, determination of national income through Keynesian cross, Consumption, saving and investment theories; Money supply and demand; QTM and inflation, causes and cost of inflation and unemployment. The short period fluctuations in an economy and stabilization policies.

NOTE: An important objective of the course is to provide a base for other courses to be taken to major in economics.

Section A  Monday, Wednesday, Friday 02:00-02:50  E-214  TBD
Section B  Tuesday, Thursday 11:00-12:15  E-221  TBD
Section C  Monday, Wednesday, Friday 03:00-03:50  E-214  TBD

ECON 103: Mathematics for Economists (3 credits)
The nature of mathematical economics; Real number system; Set theory and economics: Static analysis. Linear models and Matrix algebra. Tools of algebra and calculus; Application of calculus in economics; Tools of comparative static, optimization of one and multivariable functions and its economic application. Optimization with constraints.

Section A  Tuesday, Thursday 12:30-01:45  E-221  Dr. Rabia Aslam
Section B  Tuesday, Thursday 02:00-03:15  E-221  Dr. Rabia Aslam
ECON 201: Microeconomics II  
**Prerequisite: ECON 101, 103**

A continuation of Microeconomics I using mathematical and empirical models to analyze consumer theory, producer theory firm behavior under perfect and imperfect market structure. Input markets with both perfect and imperfect competition. Game theory.

Section A  Monday, Wednesday, Friday 02:00-02:50  E-221  Mr. Ghulam Shabbir
Section B  Monday, Wednesday, Friday 09:00-09:50  E-214  Mr. Abdul Jalil
Section C  Monday, Wednesday, Friday 08:00-08:50  E-222  TBD

ECON 202: Macroeconomics II  
**Prerequisite: ECON 102, 103**

This course emphasizes classical and Keynesian economic policy. Derivation of AD and AS models and their implication for stabilization policies. Short term and long term inflation-unemployment relationship; consumption and investment theories, economic growth, growth accounting and convergence.

Section A  Monday, Wednesday, Friday 10:00-10:50  E-222  TBD
Section B  Monday, Wednesday, Friday 10:00-10:50  E-221  TBD
Section C  Monday, Wednesday, Friday 09:00-09:50  E-222  TBD

ECON 203: Statistics for Economists  
**Prerequisites: ECON 201, 202 & 203**

Descriptive statistics; measurement of central tendency and dispersion, random variable and discrete and continuous probability distributions, sampling and sampling distribution, estimation and confidence interval of small and large sample, maximum likelihood, hypothesis testing using one and two sample analysis of variance.

Section A  Tuesday, Thursday 02:00-03:15  E-222  Mr. Abdul Jalil
Section B  Tuesday, Thursday 08:00-09:15  E-214  Mr. Abdul Jalil

ECON 300: Fundamentals of Econometrics  
**Prerequisite: ECON 201, 202 & 203**

Nature and methodology of econometrics; regression analysis and ordinary least squares; dummy variable regression models; relaxing the assumption of classical model; multicollinearity, heteroscedasticity and autocorrelation; WLS and GLS and FGLS; econometric modeling; model specification and diagnostic testing are taught in this course.

Section A  Monday, Wednesday, Friday 08:00-08:50  E-231  Mr. Zahid Iqbal
Section B  Monday, Wednesday, Friday 11:00-11:50  E-222  Dr. Tanvir Ahmed

ECON 302: Research Methods and Computer Applications  
**Prerequisite: ECON 201, 202 & 300**

Methods and methodologies of research used in Economics; techniques of investigation, data collection methods; research design; sampling and report writing and Application of econometric softwares.

Section A  Tuesday, Thursday 09:30-10:45  E-214  Mr. Abdul Jalil
Section B  Monday, Wednesday, Friday 08:00-08:50  E-221  Mr. Rizwan Ahmad
**ECON 311: Development and Growth Economics**  (3 credits)
Prerequisite: ECON 302

Economics, Institutions and development; Diverse structures and common characteristics; Measurement of economic development models: classic and modern, Economics development and issues of poverty, inequality, population, urbanization education and health. Agriculture and rural development, Growth models of Harrod-Domer, Solow-Swan Kaldor and Joan Robinson. New growth theories.

Section A  Monday, Wednesday, Friday 10:00-10:50  E-231  Dr. Tanvir Ahmed
Section B  Tuesday, Thursday 09:30-10:45  E-231  TBD

**ECON 315: Advanced Mathematical Economics**  (3 credits)
Prerequisites: ECON 103

Dynamics and Integral calculus; Definite and indefinite integral, Proper & improper integral, Economic application of Integration, Difference equations, Differential equations and their economic application. Linear Programming, Non-linear Programming, Khun-Tucker conditions and Optimal control theory with applications.

Section A  Monday, Wednesday, Friday 12:00-12:50  E-221  Dr. Rabia Aslam
Section B  Tuesday, Thursday 09:30-10:45  E-222  TBD

**ECON 400: Issues in Pakistan Economy**  (3 credits)
Prerequisites: ECON 202

Leading issues in Pakistan economy; Political economy; Growth, Income distribution and poverty; state of inflation and unemployment; Growth and development issues of major sector; Fiscal and monetary policy, Balance of payments and budget deficit; Foreign trade and aid; internal and external debt. Money and capital markets and Human Resource development.

Section A  Tuesday, Thursday 08:00-09:15  E-221  Mr. Rizwan Ahmad
Section B  Monday, Wednesday 11:00-11:50  E-231  TBD

**ECON 403: Time Series Econometrics**  (3 credits)
Prerequisite: ECON 300

Dynamic econometric models: Autoregressive and distributive lag models, Estimation of autoregressive; causality in economics; Approaches to economic forecasting; ARMA and ARIMA modeling and estimation; measuring the volatility in financial time series, ARCH and GARCH models; Vector Autoregression (VAR); Co-integration and Error Correction modeling.

Section A  Monday, Wednesday, Friday 12:00-12:50  E-222  Mr. Zahid Iqbal

**ECON 404: Corporate Finance**  (3 credits)
Prerequisites: ECON 206


Section A  Tuesday, Thursday 11:00-12:15  E-214  Ms. Zaresh Mall
Section B  Tuesday, Thursday 12:30-01:45  E-214  Ms. Zaresh Mall
**ECON 405: Globalization and Economic Integration** (3 credits)
Prerequisite: ECON 307

Role of UNCTAD, GATT and emergency of WTO; Rules and regulations of the WTO, New rounds of talks; Regional trade organizations; Impact of WTO on different sectors of Pakistan economy.

Section A  Monday, Wednesday, Friday 02:00-02:50  E-222  Dr. Babar Aziz
Section B  Monday, Wednesday, Friday 03:00-03:50  E-222  Dr. Babar Aziz

**ECON 407: Research Project and Paper Writing** (3 credits)
Prerequisites: ECON 302 and CGPA= 3.3

Students will conduct a research project under the prearranged supervision of a faculty member of the department, on a topic of economic significance. The students will present the research project and paper in a research seminar before the faculty and students and will defend his research. The paper may be published in a national or international refereed journal.

**ECON 411: Development Policy** (3 credits)
Prerequisites: ECON 311

International Debt, Aid/Assistance, Debt Crises and BOP. Resource mobilization and industrialization: Rural development and migration. Agricultural vs. Industrial development. Human Capital and its Development: ASEAN development and crises; poverty and incoming distribution; Environment and Development; Growth Models.

Section A  Tuesday, Thursday 12:30-01:45  E-222  TBD
Section B  Monday, Wednesday, Friday 11:00-11:50  E-221  Ms. Sameen Zafar

**ECON 413: Monetary Policy** (3 credits)
Prerequisite: ECON 313

Introduction to Monetary policy; Policy goals and Instruments; Monetary Policy and Macroeconomic models; Monetary policy coordination, Tobin tax, Market constraints and policy analysis in Keynesian Models. Monetary Policy rules; Price targeting vs. Inflation Targeting, Optimal policy with Endogenous contracts.

Section A  Monday, Wednesday, Friday 09:00-09:50  E-231  Mr. Zahid Iqbal
Section B  Tuesday, Thursday 08:00-09:15  E-231  Mr. Zahid Iqbal

**ECON 417: International Finance** (3 credits)
Prerequisite: ECON 307


Section A  Monday, Wednesday, Friday 03:00-03:50  E-221  Mr. Ghulam Shabir
Section B  Tuesday, Thursday 08:00-09:15  E-222  Mr. Ghulam Shabir
ECON 422: Macroeconomics Analysis  (3 credits)
Prerequisite: ECON 202


Section A  Tuesday, Thursday 11:00-12:15  E-231  TBD
Section B  Tuesday, Thursday 11:00-12:15  E-222  TBD
EDUCATION

EDUC 110: Foundations of Education (3 credits)
Perspectives on economic, cultural, political, ideological, philosophical, aesthetic and psychological foundations of education. The history of education in Pakistan will also be covered.

Section A  Tuesday, Thursday 8:00-09:15  E-331  Dr. J. Shafi
Section B  Tuesday, Thursday 8:00-09:15  N-217  Dr. C.J. Dubash

EDUC 120: Educational Psychology (3 credits)
Principles of psychology as applied to the educational process; characteristics of the individual learner, the teacher, the classroom, methods and other relevant factors in the learning process; various stages of growth and development; brief introduction to psychological measurements and creativity in children.

Section A  Tuesday, Thursday 09:30-10:45  E-331  Dr. J. Shafi
Section B  Monday, Wednesday 4:00-04:50  E-331  Aqeela Rashid
                   Friday  3:00-03:50

EDUC 315: Learning Theories (3 credits)
Prerequisite: EDUC 110
Cognitive development, learning facilitation, social perspectives and intelligence; works of Maslow, Pavlov, Skinner, Erikson, Piaget, Vygotsky, Bruner, Wiener, Gagne and Gardner.

Section A  Tuesday, Thursday 11:00-12:15  E-331  Dr. J. Shafi
ENGLISH

ENGL 101: Writing and Grammar  (3 credits)
Use of grammar structures in meaningful spoken and written communication; develop writing skills in organizing ideas, creating topic sentence, organizing paragraphs, using examples and details to support main ideas; making transitions; editing, revising and proofreading.

Section A  Monday, Wednesday, Friday 08:00-08:50  E202  Ms Sobia Kiran
Section B  Monday, Wednesday, Friday 09:00-09:50  E-202  Mr. Waqar Azeem
Section C  Monday, Wednesday, Friday 10:00-10:50  E-202  Ms Sumbul Raees
Section D  Monday, Wednesday, Friday 11:00-11:50  E-202  Ms Sumbul Raees
Section E  Monday, Wednesday, Friday 12:00-12:50  E-202  Mr. Azeem Alphonce
Section F  Monday, Wednesday, Friday 02:00-02:50  E-202  Ms. Fatima Syeda
Section G  Monday, Wednesday, Friday 03:00-03:50  E-202  Mr. Azeem Alphonce
Section H  Tuesday, Thursday 08:00-09:15  E-202  Mr Liaqat Masih
Section J  Tuesday, Thursday 09:30-10:45  E-202  Mr. Azeem Alphonce
Section K  Tuesday, Thursday 11:00-12:15  E-202  Ms Sumbul Raees
Section L  Tuesday, Thursday 12:30-01:45  E-202  Ms. Fatima Syeda
Section M  Tuesday, Thursday 02:00-03:15  E-202  Ms. Fatima Syeda

ENGL 102: Communications Skills  (3 credits)
Emphasis will be on the development of basic conversational skills, identifying the main ideas of conversations, lectures, and other spoken texts; recognizing and understanding stressed and reduced sounds in words and sentences; practice deriving the meaning of new word from the context, making inferences from what is heard, and basic note-taking skills for participating successfully in social conversation and academic discussions; improving pronunciation.

Section A  Monday, Wednesday, Friday 08:00-08:50  E-204  Mr. Waqar Azeem

ENGL 103: Advanced Writing Skills  (3 credits)
Helps students perfect their skills in writing well-developed, coherent paragraphs and short essays with special attention to editing grammar. Proficiency in the skill of academic writing. Complex sentence structure and the relationship among sentence in extended texts. Common rhetorical forms will be practiced: Narration, Process description, Classification, Course-effect, and Comparison-Contrast.

Section A  Monday, Wednesday, Friday 08:00-08:50  E-203  Dr. Kamal ud Din
Section B  Monday, Wednesday, Friday 09:00-09:50  E-203  Ms Sobia Kiran
Section C  Monday, Wednesday, Friday 10:00-10:50  E-203  Mr Liaqat Masih
Section D  Monday, Wednesday, Friday 11:00-11:50  E-203  Ms Iffat Khatoon
Section E  Monday, Wednesday, Friday 12:00-12:50  E-203  Ms Iffat Khatoon
Section F  Monday, Wednesday, Friday 02:00-02:50  E-203  Ms Susan Sylvan
Section G  Monday, Wednesday, Friday 03:00-03:50  E-203  Ms Susan Sylvan
Section H  Tuesday, Thursday 08:00-09:15  E-203  Ms Susan Sylvan
Section J  Tuesday, Thursday 09:30-10:45  E-203  Ms Faiza Zaheer
Section K  Tuesday, Thursday 11:00-12:15  E-203  Ms Iffat Khatoon
Section L  Tuesday, Thursday 12:30-01:45  E-203  Dr. N.R. Butt
Section M  Tuesday, Thursday 02:00-03:15  E-203  Dr. Robert Reid
ENGL 203: Elizabethan Drama (3 credits)

Focus on several of Shakespeare’s plays as a dramatist. Two plays will be selected to create a critical awareness regarding the question of genre, tradition, innovation and elements of universality in Shakespearian’s plays.

Section A Monday, Wednesday, Friday 09:00-09:50 E204 Dr. N.R. Butt

ENGL 214: English Novel: A General Survey (3 credits)

This course will offer an overview of prominent English Novelists. The students will read the Novels from the point of view of current literary criticism and learn to appreciate the themes of different English novels both in their historic milieu and from the perspective of current language philosophies.

Section A Monday, Wednesday, Friday 11:00-11:50 E-204 Dr. Kamal ud Din

ENGL 301: The 19th Century English Novel (3 credits)

This is a representative course of the 19th century novel and will focus on the different characteristics of Victorian culture, literature and history. It will also explore ambition, enlightenment, social moral and economic issues of the 19th century.

Section A Monday, Wednesday, Friday 12:00-12:50 E-204 Dr. Robert Reid

ENGL 303: Introduction to Linguistics (3 credits)

Theoretical concepts and empirical findings of modern linguistics on a non-technical level highlights the connection between linguistics and other disciplines and looks at how the study of language opens up new dimensions in the understanding of related disciplines.

Section A Monday, Wednesday, Friday 10:00-10:50 E-204 Dr. Nukbah Langah

ENGL 309: Modern Poetry (3 credits)

This course attempts to analyze the purpose and scope of 20th century modern poetry. It will discuss the global political, social and cultural influences on modern poetry and explain how this poetry deals with themes and techniques that highlight a unique poetic experience.

Section A Monday, Wednesday, Friday 02:00-02:50 E-204 Dr. Kamal ud Din

ENGL 310: Romantic Poetry (3 credits)

This course specifically covers critical survey of the Romantic Movement and prominent romantic poets. It will describe the distinctive position that the English Romantic Poets celebrate in this movement.

Section A Monday, Wednesday, Friday 03:00-03:50 E-204 Mr. Liaqat Masih

ENGL 311: Theory of Criticism (3 credits)

This course will define and discuss the role of critics and their theories in forming a tradition of literary criticism. It will also examine the issues related to ‘good’ and ‘bad’ or ‘adequate’ and ‘inadequate’ critical perspectives.

Section A Tuesday, Thursday 08:00-09:15 E-204 Mr. Waqar Azeem
ENGL 325: American Drama (3 credits)

A selective study of a cross section of American Playwrights. The idea is to develop a taste and understanding for American drama in particular.

Section A Tuesday, Thursday 12:30-01:45 E-204 Dr. Robert Reid

ENGL 331: Research Method for English Literature and Language (3 credits)

This course informs the students about techniques of writing professional abstracts and proposals. It examines thesis statements, finding appropriate topics for research papers, preparing and annotating bibliographies, writing book reviews from critical and analytical perspectives, getting into the process of writing first or later drafts, and editing academic research as per academic requirements.

Section A Tuesday, Thursday 09:30-10:45 E-204 Ms Sobia Kiran

ENGL 332: Film and Video: New Representative Forms of Literature (3 credits)
Prerequisite: ENGL 207

This advanced level course focuses on the new debatable forms of literature. Literature for long has been and still is considered a powerful representation of life. In terms of progress the modes of representation have changed overtime. In this course we will limit our question of representation to the changing modes of literary texts through film or video. The debate here is at a higher literary and critical level than that which students could have experienced in ENGL 207.

Section A Tuesday, Thursday 11:00-12:15 E-204 Dr. Waseem Anwar

ENGL 401: Modern Drama (3 credits)
Prerequisite: ENGL 210 OR ENGL 307

A critical examination of major writers of modern drama such as Brecht, Beckett, Miller and Pinter with particular reference to themes such as absurdism, naturalism, expressionism and “political” drama.

Section A Tuesday, Thursday 02:00-03:15 E-204 Dr. N.R. Butt

ENGL 404: English Poetry II (3 credits)
Prerequisite: ENGL 309 OR ENGL 315

The course deals with contemporary forms of poetry written in English in different parts of the world. The readings will help students understand how poetry has developed as a mix-genre technique in our times.

Section A Monday, Wednesday, Friday 08:00-08:50 E-205 Dr. Nukhbah Langah

ENGL 499: Thesis (3 credits)
Prerequisite: ENGL 403

This course will train the students for advanced academic writing and research. The students will choose a topic approved by the supervisor and develop a thesis statement with reference to the literary critical or textual analysis, expanding it into longer essay of approximately 6000 words.

Section A Monday, Wednesday, Friday 09:00-09:50 E-205 Dr. Waseem Anwar
**LANG 100: Language Skills I**  
*(12 credits)*

This course will focus on helping students attain BICS (basic interpersonal communication skills) in English with enough practice so as to make transition to the next course easier. Daily practice in the use of all four language skills will be provided and variety material will be used to improve vocabulary and comprehension.

- **Section A**  
  Monday – Thursday  
  8:00-10:30  
  N-208  
  Ms. Aneela Bushra

- **Section B**  
  Monday – Thursday  
  10:30-1:00  
  N-208  
  Ms. Alvina Waseem

- **Section C**  
  Monday – Thursday  
  1:00-3:30  
  N-208  
  Ms. Aneela Gill

**LANG 110: Language Skills II**  
*(12 credits)*

This course will focus on making the students attain BICS (basic interpersonal communication skills) in English with advanced levels of practice. Variety material will be used to improve all the skills for better comprehension along with fluency and competence.

- **Section A**  
  Monday – Thursday  
  8:00-10:30  
  N-209  
  Prof. Farhat Nagi

- **Section B**  
  Monday – Thursday  
  10:30-1:00  
  N-209  
  Mr. Fahad Aftab

- **Section C**  
  Monday – Thursday  
  1:00-3:30  
  N-209  
  Ms. Rehana John

- **Section D**  
  Monday – Thursday  
  8:00-10:30  
  N-213  
  Prof. Z.H. Naqvi

- **Section E**  
  Monday – Thursday  
  10:30-1:00  
  N-213  
  Ms. Ayesha Pervez

- **Section F**  
  Monday – Thursday  
  9:30-11:00  
  N-213
GEOGRAPHY

GEOG 101: Fundamentals of Geography (3 credits)
Builds perspective about geography as a discipline; familiarizes its thematic domains and fundamental concepts.

Section A  Monday, Wednesday, Friday 8:00-08:50  A-3  Zareen Jamil
Section B  Monday, Wednesday, Friday 9:00-09:50  A-3  Khadija Shakrullah
Section C  Monday, Wednesday, Friday 10:00-10:50  A-2  Kashif Shafique
Section D  Monday, Wednesday, Friday 10:00-10:50  A-3  Khadija Shakrullah
Section E  Monday, Wednesday, Friday 03:00-03:50  A-2  Kashif Shafique

GEOG 133: Geographical Profile of Pakistan (3 credits)
It relates to major features of the physical environment, resources, culture, communications and trade of Pakistan. Analyses of the major problems confronted by Pakistan relating to cross cultural relationships, socio-economic viability, environmental conservation, resource sustainability and development.

Section A  Monday, Wednesday, Friday 9:00-09:50  A-2  Sohail Ahmad

GEOG 222: Globalization-An Introduction (3 credits)
Focus is on evolution and dynamics of globalization and its impact on spatiotemporal pattern of human culture.

Section A  Monday, Wednesday, Friday 11:00-11:50  A-2  Sohail Ahmad

GEOG 301: Workshop on Geographical Thought and Concepts (2 credits)
The course analyzes the current philosophical themes in Geography, as well as the systemic doctrines and concepts that overwhelm the mainstream of the discipline. Implications of the current strides on the cognitive domains are assessed and their impact on the future course of geographical avenues is envisaged.

Section A  Monday, Wednesday, Friday 02:00-02:50  A-3  Khadija Shakrullah

GEOG 312: Meteorology and Climatology (3 credits)
Prerequisite: GEOG 210 or 311
The course focusing on the elements and forces producing lower atmosphere phenomena; the dynamics of heat flow, air movement, pressure changes, mass density, volume relationships and vaporization, release of moisture as applied to the changing state of the atmosphere, and production of disturbances and storms. It also examines evolution of climatic systems, their spatial and temporal transformations and impact.

Section A  Monday, Wednesday, Friday 12:00-12:50  A-2  Khadija Shakrullah

GEOG 322: Economic Geography (3 credits)
Focuses on principles governing multivariate interactions underlying the evolution and distribution of various economics of various economic activities and function; the role of temporal and spatial variable responsible for changes in the economic systems and regions.

Section A  Monday, Wednesday, Friday 02:00-02:50  A-2  Sohail Ahmad
GEOG 351: Physical Geography Seminar (2 Credits)
It comprises the department seminar investigating a selected field of Physical geography. (Topic announced by the chair, prior to registration.)
Section A      Tuesday, 02:00-03:40   A-3    Kashif Shafique

GEOG 371: Digital Cartography (3 credits)
Knowledge of computer software applications is preferred. The course completely focuses on skill development in computerized map making and interpretation/analysis.
Section A      Monday, Wednesday, Friday 12:00-12:50   A-3  Zareen Jamil

GEOG 374: Aerial and Satellite Imaging (4 credits)
Prerequisite: Knowledge of computer software applications; GEOG 272 or instructor permission.
It include the elements and interpretation processes pertaining to aerial photographs, remote sensing of earth resources and occupancy patterns; global positioning system [GPS]; geographic information science & systems [GIS]; digital image processing [DIP].
Section A      Monday, Wednesday, Friday 11:00-11:50   A-3  Zareen Jamil

GEOG 414: Global Warming and Management Issues (3 credits)
The factors and processes of global warming including disruption of the natural cycles and balance are analyzed. Other related problems and their management issues are also discussed.
Section A      Monday, Wednesday, Friday 03:00-03:50   A-3  Sohail Ahmad

GEOG 474: Geographical Information Science (4 credits)
Prerequisite: GEOG 374
The course relates to principles of geographical information science, function of geographic information system, relationship between GIS and remote sensing.
Section A      Tuesday 09:15-11:50   A-3  Zareen Jamil
HEALTH AND PHYSICAL EDUCATION

HPED 102: Football (for men) (1 credit)

Football is also both an art and a science. Football contains physical challenges. It involves the techniques of running, passing, kicking, tackling, blocking, heading, and dribbling. All these activities require good coordination as they have often to be performed at speed and require offensive and defensive team-work.

Section A  Monday, Wednesday 03:00-03:50  LC  Shahzad Nazir

HPED 104: Swimming (for women) (1 credit)

Introduction of the basic skill of swimming (Freestyle). Especially for the students, who have a little or no swimming experience. The students will learn strokes with coordination of arm and leg action.

Section A  Monday, Wednesday, Friday 12:00-01:00  College Pool  Ms. Uzma Yousaf Zaidi

HPED 105: Volleyball (for men) (1 credit)

The game of Volleyball is a combination of passing, blocking, and smashing; and requires strength, endurance, and agility. It is a team game.

Section A  Monday, Wednesday 03:00-03:50  LC  Babar Kamil

HPED 108: Table Tennis (for women) (1 credit)

The game of table tennis is a combination of serving, receiving, and smashing. Involves the technique of footwork, service, and defense. All these skills must be performed with agility, speed, and quick reflexes.

Section A  Tuesday, Thursday 12:00-1:00  Table Tennis Hall  Ms. Uzma Yousaf Zaidi
PKST 101: Pakistan Studies (Compulsory)  (3 credits)

The Ideology of Pakistan, post War of Independence developments, the Two-Nation theory, Pakistan movement, important events and the creation of Pakistan. Initial problems of Pakistan, constitutional development, Islamization in Pakistan, Land of Pakistan, economic and industrial development in Pakistan. The Islamic World and Pakistan.

Section A  Tuesday, Thursday 09:30-10:45  S-212  Arif Qureshi
Section B  Monday, Wednesday, Friday 12:00-12:50  S-212  Dr. S. A. Gill
Section C  Tuesday, Thursday 12:30-01:45  S-212  Arif Qureshi
Section D  Monday, Wednesday, Friday 02:00-02:50  S-212  Dr. Arika Syeda
Section E  Monday, Wednesday, Friday 08:00-08:50  S-213  Khizar Jawad
Section F  Monday, Wednesday, Friday 03:00-03:50  S-212  Dr. Arika Syeda
Section G  Tuesday, Thursday 11:00-12:15  S-212  Arif Qureshi
Section H  Tuesday, Thursday 02:00-03:15  S-212  Khizar Jawad
Section J  Monday, Wednesday, Friday 09:00-09:50  S-213  Khizar Jawad
Section K  Monday, Wednesday, Friday 10:00-10:50  S-213  Khizar Jawad

HIST 255: The Indus Valley Civilization  (3 credits)

The course will study the Indus Valley Civilization focusing on its origin, main features and causes of its decline. Exploring in depth the relationship of the advent of the Aryans with the Indus Valley Civilization, including the latest research and academic debates on this topic. Familiarization with archeological methods.(A field trip to Harappa).

Section A  Monday, Wednesday, Friday 10:00-10:50  S-212  Dr. Arika Syeda

HIST 304: History of the United State  (3 credits)

The American Revolution, the early national experience and the Civil War. A study of reconstruction, westward expansion, the development of political parties, diplomacy and economic development.

Section A  Monday, Wednesday, Friday 08:00-08:50  S-212  Dr. S. A. Gill

HIST 305: Ancient History of the Subcontinent  (3 credits)

The origin and main features of the historical development of the Subcontinent: the advent of Aryans, conquests, politics, society and religion of the Indus Valley Civilization, Epic Age, Caste System, Buddhism, Alexander's Invasion, the Maurayas, the Guptas, the development of Indian art and culture

Section A  Monday, Wednesday, Friday 11:00-11:50  S-212  Dr. Arika Syeda

HIST 310: Study of Institutions and Issues in Pakistan’s History  (3 credits)

A study of the bureaucracy, army, judiciary, parliament, the Kashmir issue, provincial autonomy, East Pakistan debacle, ethnicity and human rights.

Section A  Tuesday, Thursday 08:00-09:15  S-212  Khizar Jawad
HIST 401: Research Methodology (3 credits)

Research dimensions, theory and types; quantitative and quantitative research examining social sciences, scientific historical research methods.

Section A  Monday, Wednesday, Friday 09:00-09:50  S-212  Dr. S. A. Gill
MASS COMMUNICATION

MCOM 100: Fundamentals of Speech (3 credits)

Study of the basic principles and practices of good vocal production and oral communication. Examines texts, verse and prose in terms of vocal delivery. Explores the basic components of communication through analysis and practice in a variety of oral presentations. Focus is on English speaking skills.

Section A Monday, Wednesday, Friday 8:00-08:50 E-213 Quratal Ain
Section B Monday, Wednesday, Friday 9:00-09:50 E-213 Quratal Ain
Section C Tuesday, Thursday 08:00-09:15 E-213 Quratal Ain
Section D Tuesday, Thursday 09:30-10:45 E-213 Quratal Ain
Section E Monday, Wednesday, Friday 10:00-10:50 E-213 Rachel Hassan
Section F Monday, Wednesday, Friday 11:00-11:50 E-213 Ayesha Fareed
Section G Tuesday, Thursday 11:00-12:15 E-213 Ayesha Fareed
Section H Tuesday, Thursday 12:30-1:45 E-213 Rachel Hassan
Section J Monday, Wednesday, Friday 12:00-12:50 E-213 Naila Sahar
Section K Monday, Wednesday, Friday 02:00-02:50 E-213 Naila Sahar
Section M Monday, Wednesday, Friday 10:00-10:50 E-213 Naila Sahar
Section N Monday, Wednesday, Friday 08:00-08:50 E-213 Ayesha Fareed
Section P Monday, Wednesday, Friday 09:00-09:50 E-213 Rachel Hassan
Section Q Tuesday, Thursday 08:00-09:15 E-213 Ayesha Fareed
Section R Tuesday, Thursday 09:30-10:45 E-213 Rachel Hassan

MCOM 101: Introduction to Print Journalism (3 credits)

Brief history of printing and publishing, types of print journalism, introduction to newspaper organization, reporting and sub-editing. Contents of newspaper. Definition of news, structure, values and sources. Journalism in Pakistan.

Section A Monday, Wednesday, Friday 08:00-08:50 E-228 M. Ali
Section B Monday, Wednesday, Friday 10:00-10:50 E-228 M. Ali
Section C Tuesday, Thursday 08:00-09:15 E-228 M. Ali
Section D Monday, Wednesday, Friday 11:00-11:50 E-228 Dr. Saleem Abbas

MCOM 102: Introduction to Electronic Media (3 credits)

Origin and development of radio and television in Pakistan- television and radio as effective means of communication introduction to private radio and television channels; role and effects of electronic media on society.

Section A Monday, Wednesday, Friday 02:00-02:50 E-228 Fahad
Section B Monday, Wednesday, Friday 03:00-03:50 E-228 Fahad
Section C Monday, Wednesday, Friday 08:00-08:50 E-229 Anum Muzamil
Section D Monday, Wednesday, Friday 03:00-03:50 E-229 Dr. Rashid Khan

MCOM 103: Introduction to PR & Advertising (3 credits)

Advertising and its role in the society; consumer culture; advertising and mass media marketing; public relations; selling and sales management. Process and tools of PR.

Section A Monday, Wednesday, Friday 10:00-10:50 E-229 Anum Muzamil
Section B Monday, Wednesday, Friday 11:00-11:50 E-229 Anum Muzamil
Section C Tuesday, Thursday 11:00-12:15 E-229 Akram Soomro
Section D Tuesday, Thursday 12:30-1:45 E-229 Akram Soomro
MCOM 201: News Reporting (3 credits)
Prerequisite: MCOM 101, 102

Mechanics, elements, value and structure of stories for print and electronic media; news sources for print and electronic media; qualifications and functions of a reporter; basics of camera and microphone reporting; interpretative and investigative reporting; reporting beats; interview techniques.

Section A  Monday, Wednesday, Friday 10:00-10:50  E-230  Junaind Ghauri
Section B  Tuesday, Thursday 11:00-12:15  E-228  M Ali

MCOM 203: Media and Peace Building (3 credits)
Prerequisite: MCOM 101, 102

Introduction to peace building, introduction to interactive communication approach, tools of Mass Communication, understanding conflict, tools for conflict analysis, introduction to theater, role of music in peace building process, art for peace, vision and framework for peace and justice. The universal declaration of human rights, universal Islamic declaration of human rights, latest human rights reports (topics related to woman, minorities, democratic governance).

Section A  Monday, Wednesday, Friday 12:00-12:50  E-230  Firasat Jabeen
Section B  Monday, Wednesday, Friday 2:00-2:50  E-230  Firasat Jabeen

MCOM 301: Press Laws and Ethics (3 credits)
Prerequisite: MCOM 101, 102, 103

Evolution of press laws with special reference to the Sub-continent and Pakistan; a critical analysis of the current press and publication regulations; PEMRA laws pertaining to the electronic media in Pakistan; freedom of expression; defamation laws; contempt of court; contemporary trends in copyright law and the concept of intellectual property rights; code of ethics for journalists from Western and Islamic perspectives.

Section A  Monday, Wednesday, Friday 11:00-11:50  E-230  Junaind Ghauri
Section B  Tuesday, Thursday 11:00-12:15  E-230  Junaind Ghauri

MCOM 302: Opinion Writing (3 credits)
Prerequisite: MCOM 101, 102

Content and importance of editorial page; definitions and functions of editorial writing; qualification of editorial writers; topic selection, sources of material, types and structure of editorials; importance and selection of letters to the editor; definitions, structure types and importance of column and feature.

Section A  Tuesday, Thursday 09:30-10:45  E-229  Anum Muzammil

MCOM 305: Magazine Journalism (3 credits)
Prerequisite: MCOM 101

Introduction, scope and types of magazines; prospects and challenges of magazine journalism in Pakistan; writing for magazines; personality sketches, interviews and social round-ups; make-up and layout of magazines.

Section A  Tuesday, Thursday 12:30-01:45  E-228  Fahad
Section B  Tuesday, Thursday 02:00-03:15  E-228  Fahad
MCOM 401: Radio Broadcasting: A Theoretical Introduction  (3 credits)
Prerequisite: MCOM 102
Origin and development of radio in the Subcontinent; functions of broadcasting house; role in national development; distinctive features of radio news; interviewing for radio; duties of a radio producer; trends in FM radio in public and private sector in Pakistan.
Section A  Monday, Wednesday, Friday 09:00-09:50  E-229  Firasat Jabeen

MCOM 404: Community Journalism  (3 credits)
Prerequisite: MCOM 201
Status and issues regarding women, children, minorities and human rights in the local community with special emphasis on Pakistan; media coverage; NGOs and mass awareness campaigns in Pakistan; role of mass media in reporting human rights events.
Section A  Tuesday, Thursday 08:00 & 09:15  E-229  Firasat Jabeen

MCOM 405: Mass Communication Studies  (3 credits)
Prerequisite: MCOM 101, 102
Definitions, types, elements and model of communication and mass communication features and function of mass communication, media literacy, public opinion and propaganda, two-step flow of communication; barriers in communication; essentials of effective communication; gate-keeping and information control; the role of the opinion leader, current media trends, mass media and culture, mass media and society, mass media effects debates.
Section A  Monday, Wednesday, Friday 12:00-12:50  E-229  A. Soomro
Section B  Monday, Wednesday, Friday 02:00-02:50  E-229  A. Soomro
Section C  Tuesday, Thursday 02:00-03:15  E-230  Dr. Rashid Khan

MCOM 407: Internship / Research Project  (3 credits)
Only for MCOM Students
Prerequisite for Internship: CGPA 2.75
An internship will allow students to experience first-hand the functioning of media organizations; sub-editing techniques, reporting techniques of different beats such as parliament, sports, commerce, social services and courts, etc.

MCOM 409: Theories of Mass Communication  (3 credits)
Prerequisite: MCOM 405
This course will discuss theories and models of Mass Communication.
Section A  Monday, Wednesday, Friday 09:00-09:50  S-228  Dr. Rashid Khan

MCOM 410: Documentary Making  (3 credits)
Prerequisite: MCOM 102
Scripting, cinematography, editing, narration, students will make two documentaries of 10 minutes each on DVDs / CDs.
Section A  Tuesday, Thursday 9:30-10:45  E-229  Dr. Saleem Abbas
Section B  Monday, Wednesday, Friday 12:00-12:50  E-231  Dr. Saleem Abbas
MCOM 413: Media Society & Culture  
(3 credits)

Prerequisite: MCOM 409
The relationship between Media, society and culture, theories of media and culture, theories of media and society, culture socialization, homogenization, acculturation, culture diversity, pluralism, relativism and mass media, social change and mass media.

Section A  Monday, Wednesday, Friday 03:00-03:50  E-230  Junaind Ghauri

MCOM 499: Research Project/ Thesis  
(3 credits)

Prerequisite: MCOM 306

Students are required to work on their research Projects on any assigned topic and submit at the end of the 8th semester
MATH 100: Quantitative Skills (3 credits)

Basic Algebra, Percentage, Profit, Loss, Commission, Ratio, Proportion, Zakat deduction, Unitary Methods, Time, Velocity, Distance, Area and other real life applications of Mathematics. Mean, Median, Mode, Data Interpretation, Introduction to Probability.

Section A Monday, Wednesday, Friday 09:00-09:50 S-412 Mr. Kamran Azhar
Section B Monday, Wednesday, Friday 10:00-10:50 S-412 Mr. Kamran Azhar
Section C Tuesday, Thursday 09:30-10:45 S-412 Mr. Kamran Azhar
Section D Monday, Wednesday, Friday 11:00-11:50 S-412 Dr. Anwar Rao
Section E Monday, Wednesday, Friday 02:00-02:50 S-412 TBD
Section F Monday, Wednesday, Friday 03:00-03:50 S-412 TBD

MATH 101: Pre-Calculus & Trigonometry (3 credits)

Fundamentals, equations and inequalities, functions and graphs, polynomial, rational, exponential and logarithmic functions, trigonometric functions and their graphs, trigonometric identities, solution of right and oblique triangles. Matrices and their use in the solution of simultaneous equations.

Section A Monday, Wednesday, Friday 09:00-09:50 S-413 Mr. Muhammad Asghar
Section B Monday, Wednesday, Friday 11:00-11:50 S-413 Mr. Muhammad Asghar
Section C Tuesday, Thursday 08:00-09:15 S-413 Mr. Muhammad Asghar

MATH 102: Calculus 1 (3 credits)

Prerequisite: MATH 101 or A-Level Mathematics or Intermediate Mathematics

Functions, Graphs of functions, Translation, stretching and compressing graphs, Lines, Limits, Continuity, Differentiability and Integration with application, Introduction to definite integral, Introduction to parabola, hyperbola and ellipse.

Section A Monday, Wednesday, Friday 12:00-12:50 S-412 Dr. A. M. Qureshi

MATH 202: Ordinary Differential Equations (3 credits)

Prerequisite: MATH 102


Section A Monday, Wednesday, Friday 10:00-10:50 S-413 Dr. A. M. Qureshi

MATH 301: Multivariable Calculus (3 credits)

Prerequisite: MATH 201

Vectors and analytic geometry in 3-space; partial and directional derivatives, extrema; double and triple integrals with applications; cylindrical and spherical coordinates.

Section A Tuesday, Thursday 02:00-03:15 S-412 Dr. Shabnam Malik
MATH 302: Mechanics I  
Prerequisite: MATH 203  
(4 credits)

Composition and resolution of forces, friction, centre of mass and centre of gravity, kinematics and dynamics of a particle, planetary motion and Kepler’s laws, collisions of particles.

Section A  Tuesday, Thursday 09:30-11:10  S-413  Dr. Wasiq Hussain

MATH 304: Operations Research  
Prerequisite: MATH 103  
(3 credits)

Introduction to operations research, the simplex method, two phase method, M-method, graphical solution, sensitivity analysis, primal dual relationship, dual simplex method, transportation model, assignment models, transshipment models, network models, Dijkstra’s algorithm, Floyd’s algorithm, Spanning Tree algorithm, Maximal Flow algorithm.

Section A  Tuesday, Thursday 02:00-03:15  S-413  Mr. Kamran Azhar

MATH 307: Complex Analysis  
Prerequisite: MATH 201  
(4 credits)

Complex number, polar form of complex number, limits, continuity and differentiability, analytical functions, C-R equations, transcendental functions, complex integration, Cauchy theorems, entire function, Liouville’s theorem, Morera’s theorem, Taylors and Laurent’s series, residue theory, Cauchy residue theorem, contour integration, conformal mappings.

Section A  Monday, Wednesday, 12:00-01:15 & Friday 12:00-12:50  S-413  TBD

MATH 313: Group theory  
Prerequisite: MATH 210  
(3 credits)

Definition and examples of groups, subgroups, cyclic groups, Lagrange’s theorem, conjugacy, normal subgroups, quotient groups, homomorphisms and isomorphisms, Caley’s theorem.

Section A  Tuesday, Thursday 12:30-01:45  S-412  Dr. Anwar Rao

MATH 402: Ring Theory  
Prerequisite: MATH 313  
(4 credits)

Definition and Examples of Rings, Subrings, Special Classes of Rings, Ideals, Quotient Rings, Ring Homomorphisms, construction of New Rings, Factorization in Integral Domains.

Section A  Monday, Wednesday 02:00-03:40  S-413  Dr. Anwar Rao

MATH 403/CSCS 403*: Graph Theory  
(4 credits)

Graphs, sub graphs, isomorphism, trees, connectivity, Euler and Hamiltonian properties matching, vertex and edge colorings, and planarity.

Section A  Tuesday, Thursday 11:00-12:40  S-412  Dr. A. M. Qureshi
MATH 407: Functional Analysis  
Prerequisite: MATH 311  

(3 credits)

Normed spaces, Banach Spaces, Dual Spaces, Convex and Quotient Spaces, Linear Operators, Hilbert Spaces, Projection in Hilbert Spaces, Decomposition Theorem in Hilbert Spaces, annihilator and related topics.

Section A  
Tuesday, Thursday 08:00-09:15  
S-412  
Mr. Muhamamd Ashgar
PHILOSOPHY

Phil 101: Introduction to Philosophy (3 credits)

Introduction to problems & field of philosophy through the study of major philosophers; Work and other philosophical texts; this course examines many of the basic questions of Philosophy and looks at the methods of philosophical inquiry

Section A    Monday, Wednesday, Friday 09:00-09:50    E-121
Section B    Monday, Wednesday, Friday 10:00-10:50    E-121

Phil 202: Philosophy: Modern to Contemporary (3 credits)

A continuation of the study of critical thought as it develops from the 16th century CE to the present, including Eastern as well as Western thinkers. Of special interest are the issues that captured attention because of the rise of the sciences, the development of naturalism, humanism and the challenges of 20th century social crises.

Section A    Tuesday, Thursday 09:30-10:45    E-121

Phil 221: Logic How to Think Clearly (3 credits)

An examination of logic, including both Stoic contributions as well as the systematic organization of the rules of right thinking developed by Aristotle and expanded by Medieval and later thinkers make up the content of the course. It introduces the added concern about the issues raised by J. S. Mill and others that systematized inductive logic.

Section A    Monday, Wednesday, Friday 11:00-11:50    E-121

Phil 231: Philosophy of Religion (3 credits)

This course identifies the set of issues that has dominated modern and contemporary concerns about religious thought. The problem of evil, the meaningfulness of God talk, the relevance of religion for moral and social justice etc.

Section A    Tuesday, Thursday 11:00-12:15    E-121
PHYSICS

PHYS 100: Introduction to Physics (4 credits)
Not to be taken with PHYS 101 for NON FSC students

Scope of Physics, Kinematics and bodies in motion; communication, basic electricity medical physics and elements of astrophysics; laboratory: familiarization with measuring instruments and related experimentation.

Section A
Monday, Wednesday, Friday 8:00-8:50
Lab Monday 10:00-11:50
S-007 S-029 Dr. P. J. Henderson

Section B
Monday, Wednesday, Friday 9:00-9:50
Lab Tuesday 10:00-11:50
S-007 S-029 Dr. Sufian Aslam

Section C
Tuesday, Thursday 8:00-9:15
Lab Monday 02:00-03:50
S-109 S-029 Saqlain Abbas Shah

Section D
Tuesday, Thursday 8:00-9:15
Lab Thursday 10:00-11:50
S-007 S-029 Dr. P. J. Henderson

Section E
Monday, Wednesday, Friday 8:00-8:50
Lab Monday 10:00-11:50 (Not open)
S-109 S-027 Dr. Fareeha Hameed

PHYS 101: General Physics I (4 credits)

Prerequisite: Calculus I or Mathematics or Intermediate/A-Levels, Physics
Mechanics, wave motions and optics with emphasis on the fundamental principles of physics, laboratory.

Section A
Monday, Wednesday, Friday 12:00-12:50
Lab Monday 08:00-9:50
S109 S-029 Dr. Sadia Zaheer

Section B
Tuesday, Thursday 11:00-12:15
Lab Wednesday 2:00-03:50
S-016 S-029 Saqlain Abbas Shah

Section C
Tuesday, Thursday 11:00-12:15 (Not open)
Lab Thursday 2:00-03:50 (Not open)
S-007 S-029 Dr. M.Y. Zaheer

Section D
Tuesday, Thursday 09:30-10:45
Lab Friday 8:00-09:50
S-007 S-029 Saqlain Abbas Shah

PHYS 102: General Physics II (4 credits)

Prerequisite: PHYS 101 or FSc/A-Level Physics
Electricity, magnetism, DC and AC current, and modern physics, laboratory.

Section A
Monday, Wednesday, Friday 11:00-12:00
Lab Tuesday 2:00-3:50
S-007 S-029 Dr. M.Y. Zaheer

PHYS 103: Mechanics (3 credits)

Prerequisite: PHYS 101 or FSc or A level physics.
Study of physical phenomena in mathematical terms. Statics and dynamics of particles and rigid bodies; oscillatory and rotary motion; gravitation and fluid mechanics.

Section A
Monday, Wednesday, Friday 10:00-10:50
S-109 Dr. Sadia Zaheer
PHYS 104: Wave and Vibrations  (3 credits)

Prerequisite: PHYS 101 or PHYS 103 or FSC (Pre-Engineering) or A-Level Physics
Study of wave phenomena in mathematical terms, types of waves; mathematical representations; energy of waves; interference; diffraction and polarization.

Section A  Monday, Wednesday, Friday 11:00-11:50  S-007  Dr. Sufian Aslam

PHYS 151: Introduction to Sources of Energy and Environment  (3 Credits)

[Not recommended for first semester Freshmen]

Survey of conventional energy recourses; fossil fuels including petroleum, natural gas, coal and tar sands; the promise and problems of nuclear energy; Alternative energy sources; wind, solar, bio-gas, tidal etc., energy conservation; environmental pollution and its global effects.

Section A  Tuesday, Thursday 09:30-10:45  S-027  Dr. Manzur Gill

PHYS 222: Modern Physics  (4 credits)

Prerequisite: PHYS 221 or 103
Introduction to modern physics with emphasis on the basic concepts that can be treated with elementary mathematics. Einstein's special theory of relativity; black body radiation; the Bohr atom; elementary wave mechanics; atomic and molecular spectra; exclusion principle; periodic table; x-ray spectroscopy; introduction to lasers; laboratory.

Section A  Tuesday, Thursday 2:00-03:15  S-007  Dr. Sufian Aslam
Lab  Thursday 10:00 & 11:50  S-027

PHYS 332: Electronics II  (3 credits)

Prerequisite: PHYS 331
Models for active devices, single-ended and differential amplifiers, current source and active loads, operational amplifiers, feedback, design of analog circuits for particular functions and specifications, design of decision-making circuits, memory type circuits and digital circuits; laboratory.

Section A  Tuesday, Thursday 2:00-3:15  S-027  Syed Iftikhar Hussain Shah
Lab  Friday 2:00-3:50  S-027

PHYS 334: Thermal Physics  (3 credits)

Prerequisite: PHYS 221
A statistical approach to thermodynamics, thermal and chemical equilibrium, classical and expanding gas heat engines, plan transition and irreversible processes.

Section A  Monday, Wednesday, Friday 9:00-09:50  S-109  Hamid Latif

PHYS 341: Methods of Mathematical Physics  (3 credits)

Prerequisite: PHYS 103 or MATH 102
Vector analysis and special function curvilinear coordinates; Legendere polynomials; Bessel functions; Neuman functions; Couchy-Riemna equations; Fourier series and Fourier transformations; tensor analysis.

Section A  Monday, Wednesday, Friday 10:00-10:50  S-007  M. Y. Zaheer
PHYS 342: Computational Physics

Prerequisite: PHYS 321
Introduction to numerical technology for solving physics problems and programming. Chaotic motion, nonlinear mechanics, particle trajectories, Monte Carlo simulation of phase transitions.

Section A  Tuesday, Thursday 11:00-12:15  S-109  Dr. Hamid Latif

PHYS 351: Environmental Physics

Prerequisite: PHYS 221
Introduction to environmental physics. Radiation, radiation balance, heat and mass transfer, the micrometeorology of crops.

Section A  Monday, Wednesday, Friday 02:00-02:50  S109  Dr. Hamid Latif

PHYS 422: Nuclear Physics

Prerequisite: PHYS 222
Nuclear forces; nuclear phenomenology, reactions and stability of nuclear models; radiation and decay; structure of the nucleus; particle phenomenology.

Section A  Tuesday, Thursday 02:00-03:15  S-109  Dr. Fareeha Hameed

PHYS 462: Quantum Mechanics II

Prerequisite: PHYS 461
Matrix mechanics, vector spaces and linear operators, perturbation theory, application of principles of quantum mechanics to solid state and nuclear systems.

Section A  Monday, Wednesday, Friday 02:00-02:50  S-109  Dr. S. Zaheer

PHYS 472: Lasers

Prerequisite: PHYS 104, 321, 461
Study of the concepts of laser; spontaneous and stimulated emissions, absorption, pumping process, properties of laser beams, laser resonators, matrix formulation of geometric optics, stable and unstable laser resonators, modes in a laser cavity, loop gain Q-switching, and energy level of molecules.

Section A  Monday, Wednesday, Friday 12:00-12:50  S-007  Dr. P.J. Henderson

PHYS 482: Solid State Physics II

Prerequisite: PHYS 481
Free electrons, Fermi gas, nearly free electrons, energy bands, optical transitions, superconductors and magnetic properties.

Section A  Tuesday, Thursday 09:30-10:45  S-109  Dr. Fareeha Hameed
POLITICAL SCIENCE

PLSC 101: Introduction to Political Science (3 credits)

A survey of the area covered in Political Science including the nature of political science, the nature and forms of the state, structure of government, political dynamics, and the development of an appropriate political science vocabulary.

Section A  Monday, Wednesday, Friday 8:00-08:50  S-111  Ms. Muneeza Mirza
Section B  Monday, Wednesday, Friday 9:00-09:50  S-111  Ms. Muneeza Mirza
Section C  Tuesday, Thursday 11:00-12:15  S-111  Mr. Imran Iqbal
Section D  Monday, Wednesday, Friday 11:00-11:50  S-111  Dr. M. Younis
Section E  Monday, Wednesday, Friday 2:00-02:50  S-111  Ms. Shakila Sindhu

PLSC 102: Pakistan Government - National (3 credits)

A history of the freedom movement and study of the main institutions of the national government and what makes the Pakistan government unique.

Section A  Monday, Wednesday, Friday 12:00-12:50  S-111  Dr. M. Younis

PLSC 103: Pakistan Government Provincial / Local (3 credits)

A study of the government at the provincial and local level with an examination of the basic institutional arrangements of the provincial government. It will include discussion of provincial elections, political party organization, state public policy matters and a detailed exploration of the operation of government at these levels.

Section A  Monday, Wednesday, Friday 9:00-09:50  S-112  Dr. Arshad S. Karim

PLSC 201: Government of Western Europe and the United States (3 credits)

Prerequisite: PLSC 101

A comparative study of the parliamentary, presidential, unitary and federal systems of major western nations.

Section A  Tuesday, Thursday 8:00-9:15  S-111  Ms. Muneeza Mirza

PLSC 301: Ancient, Medieval and early Modern Political Theory (3 credits)

Prerequisite: PLSC 101

A study of political thought from early Greece through the 17th Century. Using original sources from philosophers including Aristotle, Plato, Hobbes, Machiavelli, Locke, Rousseau and Hegel.

Section A  Monday, Wednesday, Friday 8:00-08:50  S-112  Dr. W. Ranjha

PLSC 303: Contemporary Political Theory (3 credits)

Prerequisite: PLSC 101 & 302

Study including the debate about the status of rights, utilitarianism, liberalism, communitarian marxist, libertarian and feminism using: John Stuart Mill's, Utilitarianism. On Liberty, Essay of Bentham; Milton Friedman's Capitalism and Freedom.

Section A  Tuesday, Thursday 09:30-10:45  S-111  Mr. Qalandar Memon
PLSC 304: Research Methodology (3 credits)
Prerequisite: Stat 101

A basic study of the techniques and tools for significant research in the field of Political Science.

Section A  Monday, Wednesday, Friday 10:00-10:50  S-112  Mr. Qalandar Memon

PLSC 310: Politics of the Middle East  (3 credits)
Prerequisite: PLSC 101

Political development and advance of modernization of the area. Special attention given to the role of Islam, Arab-Israeli conflict, politics of Persian Gulf, politics of OPEC, political parties, military and politics of change.

Section A  Monday, Wednesday, Friday 12:00-12:50  S-112  Dr. M. Wali Aslam

PLSC 312: Theories of Comparative Politics  (3 credits)

The course focuses on the political forces, institutions and practices of a state, describing, explaining and predicting political event. It plays special attention to the importance of geographical, racial, ideological, ethnic and socioeconomic explanation of political institutions, processes and behavior. It surveys political structure, institutions, ideologies, interest groups and governmental systems; analysis of decision-making processes, political conflict and change, and group interaction.

Section A  Monday, Wednesday, Friday 11:00-11:50  S-112  Dr. Arshad S. Karim

PLSC 320: International Relations  (3 credits)
Prerequisite: PLSC 101

Theory and practice of international relations using the distinction between realism and idealism as the basis for study. Attention will be given to power relationships, theories of war and conflict, international morality, collective security and terrorism.

Section A  Monday, Wednesday, Friday 2:00-02:50  S-112  Dr. M. Wali Aslam

PLSC 321: Pakistan Foreign Policy  (3 credits)
Prerequisite: PLSC 101

This course will provide a survey and critical evaluation of the status and relationship between Pakistan and the rest of the world with special emphasis upon relations with the Islamic World and the United States.

Section A  Monday, Wednesday, Friday 10:00-10:50  S-112  Mr. Imran Iqbal
Section B  Tuesday, Thursday 9:30-10:45  S-111  Mr. Imran Iqbal

PLSC 323: International Organization  (3 credits)
Prerequisite: PLSC 101 & 320

Study of the background of the United Nations Organization with an analysis of the success and failure of the League of Nations. Extensive coverage will be given to the Security Council, the General Assembly and the organs of the United Nations. Particular attention will be paid to Pakistan's position on the issues.

Section A  Tuesday, Thursday 12:30-1:45  S-112  Dr. M. Wali Aslam
PLSC 332: Constitutional Law II- United States

US development of civil liberties in the American federal system and possible relationship to conditions in Pakistan.

Section A  Tuesday, Thursday 12:30-1:45  S-111  Dr. Muhammad Younis

PLSC 335: Public Opinion
Prerequisite: PLSC 101

A study of the general nature of public opinion, its development and application to Pakistan. Particular attention will be paid to modern techniques of measurement.

Section A  Monday, Wednesday, Friday 03:00-03:50  S-111  Ms. Shakila Sindhu

PLSC 402: Islam and Modernity
Prerequisite: PLSC 101

This course aims to clarify the interrelation of Islam and Modernity by deploying a multi-disciplinary perspective and addressing challenging questions about the nature of Islam’s mission in the world that have emerged in the wake of September 11. After scrutinizing the major accounts of modernity’s genesis in the West and the concomitant decline of religion, the focus of the course shifts to the historical terrain of modern West’s forays into Muslim societies in the era of imperialism and colonialism.

Section A  Tuesday, Thursday 11:00 & 12:15  S-112  Dr. Wajid A. Ranjha

PLSC 403: Seminar and Major Political Science Research Paper
Prerequisite: PLSC 304

Major Paper (20 pages minimum) written under the supervision of a Political Science professor.

Section A  Tuesday, Thursday 02:00 & 03:15  S-111  Mr. Qalandar Memon
PSYCHOLOGY

PSYC 100: Introduction to Psychology  (3 credits)
A survey of the historical background and sub-fields of psychology, research methods, biological basis of behavior and psychological processes such as sensation, attention, perception, learning, memory, motivation, emotions, intelligence, thinking and personality.

Section A  Monday, Wednesday, Friday 8:00-08:50  S-115  Suneel Samuel
Section B  Monday, Wednesday, Friday 09:00-09:50  S-115  Suneel Samuel
Section C  Tuesday, Thursday 11:00-12:15  S-115  Riffat Zahir

PSYC 200: Developmental Psychology - II  (3 credits)
Prerequisite: PSYC 100, 150
Study of human development from adulthood to old age, focusing on the physical, intellectual and personality development. Special emphasis on life after retirement and problem of old age, death and bereavement.

Section A  Monday, Wednesday, Friday 11:00-11:50  S-115  Abdul Hameed

PSYC 240: Theories of Personality  (3 credits)
Prerequisite: PSYC 100
Historical development of the field and some misconceptions. Theories of personality including psychodynamic, trait, cognitive, humanistic, physiological, and learning as well as some new approaches. Research activities and analysis will be integrated into the coursework.

Section A  Monday, Wednesday, Friday 12:00-12:50  S-115  Abdul Hameed

PSYC 305: Research Methods in Psychology  (3 credits)
Prerequisite: PSYC 100 and  PSYC 220
Basic understanding of research methodology. History of scientific approach, basic elements, methods, design and structure of research with emphasis on data collection, data analysis interpretation; writing reports and ethics of Social Science research. A small research project will be required-individually or in a group.

Section A  Monday, Wednesday, Friday 10:00-10:50  S-115  Riffat Zahir

PSYC 315: Cognitive Psychology including Lab  (4 credits)
Prerequisite: PSYC 100, PSYC 220
Information processing, attention, memory, concept formation, reasoning, problem solving and decision making. Developing thinking skills by learning CoRT thinking tools. In this course some classic experiments in cognitive psychology will also be covered. Student will analyze collected data and maintain a note book with written reports of Lab Experiments.

Section A  Tuesday, Thursday 12:30-1:45  S-115  Dr. Trimble
PSYC 320: Learning and Motivation (3 credits)

Prerequisite: PSYC 100
This Course examines basic learning and motivation processes that allow organisms to acquire new knowledge and adapt to their environments. The content of this course addresses both the historical and contemporary issues in the study of learning. Most of the material focuses on the study of learning in animals which has provided the foundation for work in human learning and motivation. Topics include habituation and sensitization; classical and operant conditioning, social learning and motivational processing.

Section A      Tuesday, Thursday 08:00-9:15      S-115      Suneel Samuel

PSYC 410: Consumer Psychology (3 credits)

Prerequisite: PSYC 100
Methods of studying consumer behavior, basic psychological concepts concerning consumer behavior such as perception, cognitive learning, attitude, cognitive dissonance, risk-taking, motivation and personality of the buyer. Emphasis on the interrelations of economics and socio-cultural factors on decision-making including recent research findings. Consumer psychology in Pakistan.

Section A      Tuesday, Thursday 2:00 & 03:15      S-115      Abdul Hameed

PSYC 430: Health Psychology (3 credits)

Prerequisite: PSYC 100
Psychosocial factors relevant to general health maintenance, recovery from disease or injury. Stress management techniques, personality characteristics associated with disease; effects of diet and exercise; theories of pain and pain management; illness prevention, handling chronic illness and psychosocial rehabilitation. Emphasis will be placed upon developing and maintaining a healthy life style. Group projects using quantitative and qualitative approaches will be given to the students.

Section A      Tuesday, Thursday 09:30 & 10:45      S-115      Suneel Samuel

PSYC 480 A: Senior Thesis (3 Credits)

Prerequisites: PSYC 100, PSYC 220, PSYC 305 and permission of instructor
An independent research study on a topic chosen by the student. The research study will be supervised by a faculty member of Psychology Department. Open to seniors majoring in Psychology
Note: PSYC 480 consists of two parts (i.e., PSYC 480 A and PSYC 480 B. If you are studying PSYC 480 A in the Fall semester you need to study PSYC 480 B in the following (Spring 2011) semester.

Section B      Monday, Wednesday, Friday 02:00-02:50      S-115      A. Ateeq, Riffat Zahir
### RELIGIOUS STUDIES

#### ISLM 101: Islamic Education  
(3 credits)

This course is intended to provide an introductory understanding of Islam. Students learn much about Islamic Way of life in this subject. They study through this course logical and rational vindication of their fundamental beliefs. The course is quite helpful in improving character traits, personality strengths and social manners in the light of Islamic teachings. By taking this course students improve their inner conviction about their faith and are likely to become better Muslims. Basic emphasis is on ethical development and character building of the students.

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<th>Section</th>
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<td>E-122</td>
<td>A. U. Rehman</td>
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<td>Dr. Farhat Aziz</td>
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<td>M. Sami Ullah</td>
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#### ISLM 103: Islamic Ideology  
(3 credits)

Prerequisite: ISLM101

This course provides rigorous insight into the Islamic Ideology and Islamic way of life. The course is a balance combination of basic and higher order thinking. It provides ample opportunity to the participants to discuss Islamic Ideology through different activities and explore the scope of its practical implication to real life. The course has especially been designed for the students who wish to appear in competitive examinations.

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<td>Hafiz A. Ghani</td>
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#### ISLM 301: Hadith- Status, Origin and Development  
(3 Credits)

Prerequisite: ISLM101

This subject provides an introductory study of Ulum al-Hadith (major collections, jarh wa ta'dil) authenticity of the sayings of the Prophet (PBUH), importance of Sunnah, codification and compilation of early Hadith literature, review of Hadith collections and reading of selected chapters from Hadith books.

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#### ISLM 303: Contemporary Muslim World  
(3 credits)

Prerequisite: ISLM 101/ CRST 152

This subject examines geographical, social and culture features of the modern Muslim world. It also includes the concept of Ummah, its resources, population, political and economic systems, organization, challenges to the Muslim world and their solutions.

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<tr>
<td>A</td>
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<td>E-126</td>
<td>M. Sami Ullah</td>
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</table>
ISLM 401: Comparative Study of Religions (3 Credits)

Prerequisite: ISLM101/CRST151
This course aims to provide students academic study of major religions of the world. Cultural contexts, scriptures, fundamental beliefs and practices and sacred art are examined. After an overview of various global forms of religions, participant look to South and East Asian rich traditions of Hinduism, Buddhism, Taoism and Confucianism. Next monotheistic religions with roots in the Middle East: Judaism, Christianity and Islam are surveyed. The comparative study of religions offers access to a range of human experiences that have produced much of the greatest literature of the world, inspired its art and philosophy, and shaped its moral consciousness.

Section A  Tuesday, Thursday 09:30-10:45  E-122  Hafiz A. Ghani

ISLM 402: Islam and the West (3 credits)

Prerequisite: ISLM101/CRST152
Islam is a major factor in global affairs and the study of Islam is an increasingly valuable part of academic and non-academic studies. The majority of Western leading scholars of religion have been studying Islam for centuries. Many western universities are offering degree programs and courses on Islamic Studies. They have addressed the topics such as the Quran, the Hadith, Islamic Law, Biography of the Holy Prophet, Sufism, Women in Islam etc. Despite this, very little attention has been given to the basic question how Islam should be taught and understood. Through this course western understanding of Islam is evaluated.

Section A  Tuesday, Thursday 2:00-03:15  E-122  Dr. Farhat Aziz

CRST 151: Introduction to Christian Thought (3 credits)

Introduction to Christian beliefs and practices; development and diverse forms of Christianity drawing on categories of the study of religion including ritual, narrative, art, and theology.

Section A  Tuesday, Thursday 09:30-10-45  E-126  Eddie Robison

CRST 152: Christian Ethics (3 Credits)

Studies the Biblical, theological, and philosophical foundations of Christian ethics.

Section A  Monday, Wednesday, Friday 09:00-09:50  E-126  Dr. Majid Abel

CRST 351: New Testament (3 Credits)

Literature of the New Testament and the historical, cultural, and political situation in Early Christianity.

Section A  Tuesday, Thursday 11:00-12:15  E-126  Eddie Robison
SOCL 100: Introduction to Sociology (3 credits)
This course aims to develop an understanding of societal processes by thinking critically about oneself in relation to the various social structures and worlds at the individual, group and societal levels. The global focus of the course uses the tools of Sociology to look at a variety of issues around the world. The course provides an opportunity to both learn about basic sociological approaches and to do some sociological research.

Section A  Monday, Wednesday, Friday 8:00-8:50  E-324  A. Azeem
Section B  Monday, Wednesday, Friday 10:00-10:50  E-324  G. Clark
Section C  Monday, Wednesday, Friday 9:00-9:50  E-324  A. Azeem
Section D  Tuesday, Thursday 08:00-09:15  E-324  S. Rasheed
Section E  Monday, Wednesday, Friday 11:00-11:50  E-324  G. Clark

SOCL 201: Sociological Research (3 credits)
Prerequisite: SOCL 100 or another introductory course in the Social Sciences
The objective of this course is to know about the major methodological approaches in social science research. Students become aware of the comparative advantages and limitations of a variety of research orientations, strategies and techniques. The class is also an experience in organized curiosity that provides an opportunity for students to do sociology. Experiments, field observations, unobtrusive research and surveys will be learned by lecture, discussion, and the review of examples. Then the class will become a research team using the basic methods and techniques of social research to carry out a group research project. As students participate in a series of activities they will develop skills in observation, interviewing, hypothesis building, theory building, questionnaire construction, computer data manipulation, data interpretation, research report writing, and client support.

Section A  Monday, Wednesday, Friday 12:00-12:50  E-324  A. Azeem

SOCL 220: Introduction to Criminology (3 credits)
Prerequisite: SOCL 100
Criminology is a distinct discipline which deals with the discourse and inquiry about crime. This course provides a sociological basis to understand deviancy and criminal behavior. Its approach towards crime is empirical and scientific which sets it apart from legal and moral debates about the subject. This course reviews the causes and consequences of crime, responses to crime and historical transition of ideas about crime. It also provides tools for the scientific investigation of criminal behavior.

Section A  Tuesday, Thursday 09:30-10:45  E-324  A. Azeem

SOCL 430: Sociology of Consumption (3 credits)
Prerequisite: SOCL 100, SOCL 201 and 301
This course gives a sociological explanation of consumption and consumer behavior, and trends in consumption by emphasizing social-cultural aspects of consumption. It will look at meanings attached to goods, meanings of signs, political economics of consumption, welfare and well-being and social stratification of consumption. This course analyzes development of consumer behavior by focusing on production, marketing, distribution, sale and appropriate of goods and products having various social identities.

Section A  Monday, Wednesday, Friday 2:00-2:50  E-324  S. Rasheed
SOCL 465: Sociology of Sport and Leisure (3 credits)

Prerequisite: SOCL 100, SOCL 201 and 301
This course critically examines cultural and economic relations in sport and leisure. Topic includes outdoor recreation, spectator sport informal play, tourism and other entertainment activities. Topics will be explored from both contemporary and historical perspectives with emphasis on the dynamics of power and identity.

Section A  Tuesday, Thursday 11:00-12:15   E-324  A. Azeem

SOCL 499: Final year Independent Research Project (3 credits)

Prerequisite: Only available to Sociology majors who have taken SOCL 100, SOCL 201 and 301 and who have a minimum CGPA of 2.75
An independent research on a topic chosen by the student which will be conducted under the supervision of Sociology faculty member.

Section A  Tuesday, Thursday 12:30-01:45   E-324  A.Azeem, S. Rasheed, G.Clark
STATISTICS

STAT 100: Basic Statistics (3 credits)
Sample and population, variables, collection and presentation of data, measures of central tendency and dispersion for ungrouped data, index numbers, correlation and free hand line of trend.

Section A  Monday, Wednesday, Friday 9:00-09:50  S-420  M. Anwar Mughal
Section B  Monday, Wednesday, Friday 08:00-08:50  S-420  Nadia Mushtaq
Section C  Monday, Wednesday, Friday 12:00-12:50  S-420  Farha Yasmin
Section D  Tuesday, Thursday 11:00-12:15  S-420  Dr. Muhammad Aslam
Section E  Monday, Wednesday, Friday 10:00-10:50  S-421  Muhammad Aslam

STAT 101: Statistical methods (3 credits)
Nature and scope of statistics, scales of measurements, measure of central tendency and dispersion for grouped data, moments, skewness and kurtosis, fundamental rules of counting, basic probability, and moments in probability context.

Section A  Monday, Wednesday, Friday 8:00-08:50  S-421  Samia Ayub
Section B  Monday, Wednesday, Friday 02:00-02:50  S-420  Muhammad Aslam
Section C  Monday, Wednesday, Friday 09:00-09:50  S-421  Farha Yasmin
Section D  Monday, Wednesday, Friday 10:00-10:50  S-420  M. Anwar Mughal
Section E  Monday, Wednesday, Friday 11:00-11:50  S-420  Nadia Mushtaq
Section F  Monday, Wednesday, Friday 11:00-11:50  S-421  Dr. Mujahid Rasul
Section G  Monday, Wednesday, Friday 12:00-12:50  S-421  Dr. Muhammad Azam

STAT 102: Probability and Probability Distributions (3 credits)
Basic set theory. Different approaches and laws of probability. Conditional probability, Bayes’ rule. Random variables, some standard discrete and continuous probability distributions

Section A  Tuesday, Thursday 09:30-10:45  S-421  Dr. Mujahid Rasul

STAT 201: Statistical Inference I (3 credits)
Prerequisite: Stat 101 or 102
Population and sample; Introduction to sampling distributions and their properties; point and interval estimation; testing of hypotheses about means, proportions and variances.

Section A  Tuesday, Thursday 02:00-03:15  S-420  Muhammad Aslam

STAT 205: Business Statistics (3 credits)
Application and concept of probability and probability distributions in business, sample and sampling distributions, statistical inference in marketing and business, polynomial models in supply and demand, model fitting through simple and multiple regressions.

Section A  Tuesday, Thursday 09:30-10:45  S-420  M. Anwar Mughal

STAT 303: Regression Analysis I (3 credits)
Prerequisite: STAT 201
Estimation of regression parameters, Residual analysis; Inference about regression.

Section A  Tuesday, Thursday 12:30-01:45  S-421  Dr. Muhammad Azam
STAT 313: Operation Research  (3 credits)
Prerequisite: STAT 102
Introduction, mathematical modelling; general linear programming, simplex method, transportation problem, dynamic programming, inventory control, queuing theory, steady state model and it’s economic analysis.

Section A  Tuesday, Thursday 08:00-09:15      S-420      Nadia Mushtaq

STAT 314: Reliability Analysis  (3 credits)
Prerequisite: STAT 304
Review of probability functions, basic reliability definitions, failure time distribution, exponential time-to-failure models, hazard rates, life testing, and reliability estimations of parameters. System reliability.

Section A  Tuesday, Thursday 12:30-01:45      S-420      Dr. Muhammad Aslam

STAT 400: Acceptance Sampling  (3 credits)
Prerequisite: STAT 305
Introduction to acceptance sampling plans, classification of sampling plans, probability and operating characteristic curves, probability function, single, double, multiple sampling and sequential sampling by attribute.

Section A  Monday, Wednesday, Friday 03:00-03:50      S-421      Dr. Muhammad Aslam

STAT 403: Point Estimation  (3 credits)
Prerequisite: STAT 304

Section A  Tuesday, Thursday 11:00-12:15      S-421      Dr. Mujahid Rasul

STAT 406: Applied Multivariate Analysis  (3 credits)
Prerequisite: STAT 202
Multivariate data, review of multiple regression analysis, PC analysis and Factor analysis, Canonical correlation, Hostelling T procedures, MANOVA, Discriminant analysis.

Section A  Tuesday, Thursday 02:00-03:15      S-421      Dr. Muhammad Azam

STAT 411: Survey Methods  (3 credits)
Prerequisite: Stat 301
Survey types, Construction of survey instruments, benchmarking questionnaires, choosing appropriate research designs, estimation of sample size, pilot survey, Preliminary and technical reports.

Section A  Tuesday, Thursday 08:00-09:15      S-421      Samia Ayub
**URDU 101: Communicative Urdu**  
(3 credits)

Communication and its different means; brief introduction to Urdu language; some fundamentals of Urdu grammar; functional Urdu; creative writing; journalistic Urdu.

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<td>Dr. Ali M. Khan</td>
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**URDU 202: Classical Urdu Poetry**  
(3 credits)


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**URDU 204: Urdu Grammar and Literary Terms**  
(3 credits)

Ilm-ul-bayan: Ilm-ul-Badih, Adabi Istlahat.

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**URDU 205: Pakistani Poetry**  
(3 credits)

Brief background of Pakistani poetry – Munir Niazi, Shahzad Ahmad and Ahmad Fraz; Nazam: Munir Niazi, Anwar Masood, Parveen Shakir and Amjad Islam Amjad.

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**URDU 207: Literary Journalism**  
(3 credits)

Difference between journalistic and literary use of language; evolution of literary journalism in Urdu; leading literary journals: Tehzzeb-ul-ikhlaq, Awadh Puch, Saqi, Adbi Dunya, Naqoosh and Fanoon

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**URDU 303: An Introduction to Selected Genres**  
(3 credits)

Introduction to poetic and prose genres of Urdu Literature: Ghazal, Nazam, Rubai, Qata, Haiku, dastaan, the novel, drama and character sketch.

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URDU 402: A Study of Urdu Drama (3 credits)

Art and evolution of Urdu drama: selected extracts from Anar Kali, Mirza Ghalib Bandar Road Per and Man Chalay Ka Soda.

Section A  Tuesday, Thursday 02:00-3:15  E-105  Ms. Noureen Khokhar

URDU 405: Principles of Literary Research (3 credits)

Definition of importance of literary research; evolution of Urdu research up till Aab-e-Hayat by M. Hussain Azad; principle and resources of research; terminology and preparation of research paper

Section A  Tuesday, Thursday 11:00-12:15  E-330  Dr. Ghafoor S. Qasim
### Changes in the Course Atlas 2011 Spring

#### Addition of New Courses

1. **SOCL 435** The Sociology of Aging and Policy Choices  
   *Prerequisite:* SOCL 100 or Instructor’s permission required.  
   **Section A** Tuesday, Thursday 02:00-2:50  E24  Dr. Grace Clark

2. **PHYS 222** Statistical Physics  
   **Section A** Tuesday, Thursday 11:00-12:15  S007  Dr. M.Y. Zaheer

3. **EDUC 240** Technology in Education  
   **Section A** Tuesday, Thursday 12:30-01:45  N217  Dr. C.J. Dubash

#### Time Changed for the Following Courses

<table>
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#### Instructor Changed

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#### Course Cancelled

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