Welcome to Forman Christian College

Welcome to a new venture in higher education in Pakistan

Forman Christian College is

• A Chartered University that offers a four-year Bachelors Degree Programme designed to meet world-class standards for accreditation.

• A non-profit university in which every rupee of revenue is used to provide the best possible education for our students.

• A college with a glorious history of over 140 years of quality education.

• The Alma Mater of countless distinguished persons who have helped to improve the quality of life in the nation as leading government officials, business leaders, educationists, doctors, attorneys, military leaders and community leaders who live by the college motto, “By Love, Serve One Another.”

• A college in which an excellent faculty takes a personal interest in each student, and each student has a member of the faculty serve as his or her Academic Adviser.

• A college in which each course in the curriculum has been newly designed this year in order to insure that students are learning current knowledge in each discipline.

• A community of concerned persons who are trying to live by the Core Values of the college: integrity, commitment to excellence, discipline, justice, service.

• A college located on a beautiful and safe campus of over 100 acres with adequate academic buildings, sports grounds and swimming pool.

• A college with a rich tradition of co-curricular activities and sports.

We invite you to be part of

• Opportunities for intellectual stimulation and active learning.
• An environment conducive to personal growth.
• A warm and friendly community.
• An educational program that will prepare you well for your career and for your role as a citizen.

Cordially,

Peter H. Armacost
Rector
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## Academic Calendar 2006-2007

### Fall Semester

- **New Student Orientation**
  - September 13-14, 2006
- **Registration for New Students**
  - September 15-16, 2006
- **Classes Begin for Students**
  - September 18, 2006
- **Last Day to Add a Course**
  - September 25, 2006
- **Eid-ul-Fitr Holiday (Subject to the moon)**
  - October 21-23, 2006
- **Last Day to Withdraw from a course Without Applying WP or WF grade**
  - October 26, 2006
- **Mid Terms**
  - October 30, November 10, 2006
- **Iqbal Day Holiday**
  - November 9, 2006
- **Registration for Spring 2007 Semester**
  - January 20, 2006
- **Winter Break Begins (Inclusive of Christmas & Eid-ul-Azah)**
  - December 24, 2006
- **Winter Break Ends**
  - January 7, 2007
- **Last Day of Classes**
  - January 12, 2007
- **Final Exams**
  - January 15-26, 2007
- **Grading Break (no student days)**
  - January 29, February 2, 2007
- **Kashmir Day Holiday**
  - February 5, 2007

### Spring Semester

- **Classes Begin for Students**
  - February 6, 2007
- **Last Day to Add a Class**
  - February 13, 2007
- **Last Day to Drop a course Without Applying WP or WF grade**
  - March 14, 2007
- **Mid Terms**
  - March 19-30, 2007
- **Pakistan Day Holiday**
  - March 23, 2007
- **Easter Holidays**
  - April 6-9, 2007
- **Eid Milad-un-Nabi Holiday**
  - April 11, 2007
- **Registration for Summer 2007 Semester**
  - April 16-20, 2007
- **Registration for Fall 2007 Semester**
  - April 30-May 7, 2007
- **May Day Holiday**
  - May 1, 2007
- **Last Day of Classes**
  - May 25, 2007
- **Final Exams**
  - May 28-June 8, 2007
- **Grading Break (no student days)**
  - June 11-15, 2007

### Summer Semester

- **Classes Begin for Students**
  - June 18, 2007
- **Last Day to Add a course**
  - June 20, 2007
- **Last Day to Drop a course Without Applying WP or WF grade**
  - July 6, 2007
- **Mid Terms**
  - July 7-8, 2007
- **Last Day of Classes**
  - July 27, 2007
- **Final Exams**
  - July 30-31, 2007
- **Grading**
  - August 1-3, 2007
An Introduction
Mission and Vision

The Mission of Forman Christian College is to prepare students for ethical and responsible leadership in Pakistan and the wider world; leaders who exemplify the FCC motto, “By love, serve one another.”

The Vision of the college is to be recognized as one of the very best colleges on the entire subcontinent. This is in keeping with the distinguished reputation established during the first century in the life of the college.

The educational programs and the faculty approach to teaching are designed to graduate:

“Empowered learners” with strong written, oral and quantitative skills that they can use to evaluate a constant flood of information. The idea is to create in them the ability to think independently and critically, solve problems and continue a lifetime of self-directed learning;

“Informed learners” who understand global and cross-cultural relationships, value the philosophy and history underlying the nation of Pakistan, and are fluent in both their native language and English;

“Responsible learners” who understand the ethical consequences of actions and are well-groomed to be active citizens who accept their public duty and participate in the decision-making process of a democracy.

Brief History of Forman Christian College

Forman Christian College was founded in 1864 by Dr. Charles W. Forman, a Presbyterian missionary from the USA. The college was initially known as the Lahore Mission College, but in 1894 the name was officially changed to Forman Christian College in honor of the founder. In the early years, degrees were awarded through the Calcutta University, but college level instruction was interrupted in 1869 due to the illness of key faculty members. Since college level instruction was resumed in 1886, degrees have been awarded through the University of the Punjab.

The early years of the college were marked by rapid growth in enrollment, and a constant struggle to find enough space to house the growing college. Enrollment grew from 18 students in 1886 to 130 by 1890, 311 in 1900, 426 by 1910 and 600 by 1915. Enrollment had reached 1500 students by the time of the nationalization of the college in 1972. Enrollment today stands at 3,100 students.

The college campus was located in the Anarkali (Nila Gumbad) area of downtown Lahore for many years. Four major buildings were constructed by the college on that campus by 1916, and Ewing Hall, built in 1916, is still used as a hostel by the college today. In 1940 the college moved to its present spacious campus of over 100 acres on the scenic banks of the Lahore Canal.
Forman Christian College has been served by many very distinguished educational leaders and teachers throughout its history. Dr. C.W. Forman, Dr. Sir J.C.R. Ewing, Dr. C.H. Rice, Dr. E.D. Lucas, Dr. S.K. Datta, Dr. H.C. Velte, Dr. J.H. Orbison, Nobel Laureate Dr. Arthur Compton, Maulvi Muhammad Bakar, Dr. H.D. Griswold, Prof. J.M. Benade, Shamsul Ulema, Maulavi Muhammad Hussain, Dr. K.C. Chatterji, Dr. P. Carter Speers, Dr. S.L. Sheets, Prof. M.S. Bhatti, Maulana Farzand Ali, Dr. R.H. Ewing, Dr. E.J. Sinclair, Dr. Robert F. Tebbe, and Dr. Carl Wheeless are among many who have impacted the lives of students and shaped the future of the college through the years. Under their leadership, the college became widely regarded as one of the very best colleges in the entire subcontinent.

For many decades, F.C. College has been widely recognized for its meritorious work of nurturing and consolidating the social and intellectual capital of Pakistan. The college motto, “By love, serve one another,” has been a guiding principle for Formanites throughout the history of the college. Among the graduates of the college are two presidents of Pakistan, a Prime Minister of India, the first Chief Justice of Pakistan, a number of Governors and Chief Ministers of the Punjab and other provinces, an Attorney General of Pakistan, a Foreign Minister of Pakistan, a President of the Security Council of the United Nations, numerous Ambassadors to other nations, a Chairman of the Atomic Energy Commission, a Chairman of the Senate and several Speakers of the National Assembly, numerous Generals and Admirals, and an equally impressive list of leaders in the fields of education, the law, medicine, the arts and entertainment.

Today prominent Formanites shaping Pakistan’s future include the President of Pakistan, General Pervez Musharraf, the Chief Minister of the Punjab, Chaudhry Pervaiz Elahi, Chairman of the Senate, Muhammad Mian Soomro, Chairman of Haleeb Foods, Ilyas Chaudhry, CEO of PIA, Ahmad Saeed, Group Captain (Retd.) Cecil Chaudhry, and former President of the United Nations Security Council, Jamsheed K.A. Marker.

Forman Christian College has been a leader in the development of curriculum in the universities of Pakistan. Through the years the college introduced into the curriculum such subjects as the sciences, economics, psychology, geography, technical chemistry, and sociology. FCC is the first college on the subcontinent in whose laboratories research work of Nobel Prize caliber was conducted, and Dr. Arthur Compton received the Nobel Prize in 1932 for research conducted, in large part, at FCC. In 1902, the college was the first college in the Punjab to admit women.

FCC also has a distinguished record of performing service to the nation. During the time of partition, the college converted two hostels into a hospital for refugees seeking medical assistance and asylum. Thus began United Christian Hospital. During the Kangra Valley earthquake disaster in 1905, Dr. J.C.R. Ewing organized and led the relief effort. Similarly, later at the time of the Quetta earthquake the college did devoted relief work, this time under the leadership of Prof. Jagun Nath. And social service by students was made popular by Prof. D.J. Fleming many years ago.

In 1972 the college was nationalized by the Government, and it was returned to the present owners of the college on March 19, 2003. In March 2004, the Government granted university status to Forman Christian College. The college embarked upon an exciting new stage in its history in September 2005 when it began a four year Bachelors (Honors) program designed in accordance with world-class standards for accreditation.
Basic Commitments of Forman Christian College

Commitment to Excellence

Forman Christian College (A Chartered University) operates all of its programs in accordance with the highest standards of excellence in education. The educational programs are designed and implemented in accordance with world-class standards of accreditation. The college has begun the process of seeking accreditation with one of the six regional accrediting associations in the USA.

Commitment to Individual Development

FCC is concerned with the development of the whole person, and therefore encourages the intellectual, spiritual, cultural, social, emotional and physical growth of each student. We seek to prepare students for the basic responsibilities of life, and especially for competent and humane leadership and service. The Forman Christian College experience is designed to help students go beyond the limitations caused by ignorance, narrowness, conformity, self-centeredness and irresponsibility. Our goal is to help individuals achieve excellence in thought and conduct.

Commitment to Core Values

The faculty and staff of Forman Christian College seek to live by and to teach students the Core Values of the College. In a variety of different settings students are asked to learn and live by the following values:

Integrity
I will speak the truth and keep my commitments. I will take my responsibilities seriously and fulfill them to the best of my ability.

Excellence
I will be steadfast in my pursuit of excellence. I will set high standards in my intellectual life, personal behavior, and interpersonal relationships. I will honor the traditions of the college and preserve the beauty of the campus.

Respect for the dignity of each human being
I will treat others with respect, kindness, generosity of heart and compassion. I will accept and tolerate differences. I will handle disagreements with candor and civility.

Discipline and Accountability for my actions
I will uphold the policies of the college and follow the rules and regulations. I understand that behavior has consequences. This understanding is an essential component in the development of my self-discipline.
Fairness and Justice
I will be fair in all of my decisions and work toward justice for others.

Service
I will live the motto, “By Love, Serve One Another” knowing that serving others is a way of life that will enrich the community and the nation in which I live.

Community
I will take the concerns of others in the college community to heart. Because we are bound together by common purposes, objectives and values, the welfare of all will be my concern.

Commitment of Faculty to Students
The faculty of Forman Christian College is committed to student learning and to helping students succeed in their studies and be well prepared for a meaningful and productive life after college. Students will form a close personal relationship with one or more members of the faculty, and this close student-faculty contact has been one of the strengths of FCC throughout its history. Faculty members provide assistance to students, as needed, outside of the classroom, and they do not charge tuition for this help. Indeed, their contract with the university prohibits faculty members from charging tuition for extra assistance.

Commitment to General Education
While Forman Christian College is committed to helping students develop competence in a specific field, it is equally committed to general education. The general education program is designed to provide a foundation for lifelong learning by helping students to develop a love of learning. It prepares students for responsible citizenship by teaching them the lessons of history, by creating awareness of their cultural heritage, and by helping them understand the causes of social and political unrest, and the conditions for stable governance and sustainable economic development. Through studies in the Humanities, the general education program seeks to help students explore various perspectives on the central concerns of human existence. The general education program is designed to help students to assume increased responsibility for their own growth, and to master the skills that are necessary to understand and deal with a rapidly changing and increasingly complex world.

The general education program requires students to take three courses in each of the following areas of human knowledge: Natural and Physical Sciences, Humanities, Social Sciences, and Computer Science/Mathematics. Four courses are required in Communications.
Commitment to Career Preparation
Enriched with the Enduring Qualities of a Liberal Arts Education

Forman Christian College seeks to graduate students who are well prepared for success in a career. Through the major field of study selected by the student, he or she will receive a basic knowledge of a particular field in enough depth to be successful in entry level positions in a career and to advance successfully to increased levels of responsibility on the job. However, it is impossible to predict what a person will need to know for success on the job twenty years from now, but we do know that in most jobs new knowledge will have to be mastered that does not even exist today. Therefore, it is more important to learn how to learn, how to think, how to solve problems, and how to communicate effectively than it is to focus narrowly on the content of an academic discipline. The educational program is designed to help students develop these skills.

Commitment to Co-Education

The Bachelors Degree Program of Forman Christian College is co-educational. FCC first admitted women in 1902, and it seeks to provide a learning environment in which both men and women can learn effectively and develop the character traits and personality that will enable them to succeed in later life. The core value of respect for the dignity of each human being is also an important consideration in creating a wholesome and positive atmosphere for learning by both men and women.

Commitment to Life-long Learning

Forman Christian College seeks to prepare students for a lifetime of self-directed learning. This will be essential for success in a rapidly changing and increasingly complex world. The faculty models this commitment by constantly learning about new knowledge in their academic discipline, and by participation in a variety of professional development programs presented to them by the university management to help them learn new approaches to teaching and learning.
Academic Programme
The Academic Calendar

Forman Christian College follows the Semester System. The fall and spring semesters are each fourteen weeks in length and each is followed by a 2-week long examination period. Courses during the semester are offered for the full fourteen weeks, and ordinarily a full-time student will take five courses each semester.

A 6-week Summer Semester after the spring semester is optional and will cost extra. Student can take a maximum of 2 courses only. Each class session is offered for 1.5 hours five days a week for 6 weeks. This is followed by a 2-day examination period.

The Advising System

Each student will be assigned to a faculty member who will serve as his/her advisor and tutor. The Advisor will work with the student to select courses and class schedule, and they will discuss career planning and personal growth. Once the student selects a major program of study, the advising will be done by a faculty member from that department. It is each student’s responsibility to meet with his or her advisor at least once each semester to review their academic progress. Students will have as much guidance as they need and as much freedom as they can responsibly handle.

General Education

An important part of the program for each student is general education. Students must take a total of 51 credit hours in the general education program. This includes three courses in each of the following areas of human knowledge: Natural and Physical Sciences, Humanities, Social Sciences, and Computer Science/Mathematics. Four courses are required in Communications.

In addition, students are required to demonstrate competence, at the university level, in written and oral communication, quantitative skills, and basic skills in information technology. The general education courses will prepare students well for these examinations. The college wide examinations in these areas will normally be taken at the end of the second year in the program.

The Faculties

The faculty of Forman Christian College is organized into the following areas:

Faculty of Natural and Physical Science

The Faculty of Natural and Physical Science includes members of the Departments of Biological Sciences, Chemistry and Physics.
Faculty of Social and Behavioral Science
The Faculty of Social and Behavioral Science includes members of the Departments of Geography, Political Science, Psychology, and Sociology.

Faculty of Humanities
The Faculty of Humanities includes members of the Departments of Art, Drama, English, Foreign Languages, History, Religious Studies, Mass Communication, Philosophy and Urdu.

Faculty of Education
The Faculty of Education includes members of the Departments of Education and Health & Physical Education.

Faculty of Management and Business
The Faculty of Management and Business includes the Departments of Business and Economics.

Faculty of Information Technology
The Faculty of Information Technology includes the Departments of Computer Science, Mathematics and Statistics.

Ewing Memorial Library
The Ewing Memorial Library supports the educational mission of the college by providing facilities, resources and services designed to enhance the student's learning experience. In a world of rapid change and increasing complexity the ability to locate and use needed information has become a crucial skill. The library staff seeks to help students achieve competency in making use of available resources.

The library includes a large reading room, seven (7) smaller rooms for specialized functions, and 2 floors of stacks for books. The library collection as over 90,000 volumes, and it is connected to the Digital Library of the Higher Education Commission which provides access to over 10,000 electronic journals and databases. The library will be fully automated by 2006.

Career Services and Placement
The Career Services Office provides resources to assist students in making responsible decisions and strategies regarding career options and job search. The Formanite Alumni Association is developing a Network of Advisers to assist students to discover the requirements and benefits of many different career choices. The Career Services Office will help students in their job search by attempting to have prospective employers visit campus to meet with students.
Forman Christian College has an impressive and well maintained campus with all of the facilities needed to create an environment that is truly academic and conducive to purposeful learning. Located in a beautiful residential area and commercial part of Lahore, the campus sprawls over a wide area measuring over one hundred acres along the left bank of the canal.

The Academic Block includes five buildings plus an auditorium and the Ewing Memorial Library. The classroom buildings feature spacious lecture rooms, numerous classrooms suitable for smaller classes, and scientific laboratories.

A-Block is the home of the Departments of Economics, Education, Geography, Mathematics, Political Science and Psychology.

B/C-Block has classrooms, offices and laboratories for the Departments of Biological Sciences and Chemistry.

D-Block houses the Departments of English, History, Religious Studies and Urdu.

P-Block has a large teaching auditorium (P-10) and the classrooms, laboratories and offices for the Departments of Physics and Statistics.

N-Block is a general classroom building and houses the department of Mass Communication, Business Management and Computer Studies/Information Technology.

The college is now in the advanced stages of planning two new facilities that will be ready for occupancy during the 2006-2007 academic year. One building will house social science disciplines including the Departments of Business Management and of Economics. A second new building will be a modern state-of-the-art science building for the Departments of Biological Sciences, Chemistry, Physics and Computer Studies/Information Technology.

Lucas Centre contains the Canteen which offers a setting for students to relax between classes. Basketball courts, a gymnasium, badminton and table tennis facilities are also located in Lucas Centre as are the offices of the Health & Physical Education Department.

The college has a large sports ground in the centre of campus that includes facilities for Cricket, Football, and Hockey plus a 400-meter oval shaped running track. A modern 25 meter swimming pool and six lawn tennis courts are also located on campus.

Five Student Hostels are located on campus, and an additional hostel, Ewing Hall, is located in the Anarkali (Nila Gumbad) area of downtown Lahore. The hostels located on campus are Griswold Hall, Kennedy Hall, Newton Hall, Velte Hall and West Hall. Each hostel provides rooms for approximately 90 students plus a common room and a mess hall. Almost all of the student rooms are single cubicles for only one student, but they are arranged in such a way as to have three rooms share a verandah.
Learning is not restricted to the classroom, and many of the most important lessons learned during the college years are learned through participation in co-curricular and sports programmes. Forman Christian College offers a great variety of programmes that provide opportunities for students to participate in activities that contribute to their learning and enjoyment.

Co-curricular Activities

Forman Christian College is committed to providing a holistic education. Classroom learning is supplemented by opportunities for students’ intellectual and moral growth through carefully planned literary and academic activities and programmes. A Cultural Societies Board coordinates and promotes activities of all the existing student societies, and virtually every academic department has a student society. Thus, there are over sixteen (16) different Student Academic Societies. Each society plans and conducts programs during the year that enrich the learning experiences of students and provide opportunities for student leadership.

The Debate Society participates in frequent debate and declamation contests throughout Pakistan. It has an outstanding record of winning trophies in intercollegiate competitions, and the skills acquired through the debate program are exceedingly helpful in many different careers in later life.

The Drama Society produces at least two major productions each year. In some cases the plays are original plays written by members of the faculty or student body; whereas most plays are those written by major playwrights. The drama society produces plays in both English and Urdu.

The Music Society has sponsored several programmes each year, and provides a setting for students to develop and display their musical talent.

Residential Life

Students who come from outside of Lahore are provided the opportunity to live in one of the five student hostels on campus or in Ewing Hall downtown. The college has accommodations for about 560 students in the hostels. The hostels provide students with facilities for healthy and comfortable living together with a common room in each hostel for recreation. Meals are served at fixed times in the dining hall of each hostel. Each hostel has two faculty members, a Warden and an Assistant Warden, who live in the hostel and provide supervision to the quality of student life.

Canteen / Recreation Centre

Student-faculty-staff social interaction in a more relaxed setting takes place in the Canteen in Lucas Centre. The faculty is available to assist students outside of class, and the Canteen is often the appropriate setting for this interaction. More typically, it is simply a place for students to go for lunch or for snacks between classes.
Religious Life

As a Christian college, we are concerned with teaching values and building strong positive character traits and discipline in our students. For Christian students we offer regular chapel programs, regular Bible study groups and opportunities for volunteer service. For Muslim students we convene Dars-e-Quran classes together with symposia/discussions wherein eminent Muslim scholars are invited to deliver talks and/or to engage students in discussions on important religious, social and moral issues.

Sports

Forman Christian College has a College Sports Board that organizes, promotes and conducts games. The college features a very active intramural sports program with competition in athletics, basketball, cricketer, football, hockey, table tennis, wrestling, lawn tennis, and swimming. Inter-collegiate competition in many of these sports is also featured as part of the sports program.

Health Services

The college operates a small dispensary in Lucas Centre, and has an on-going relationship with the nearby United Christian Hospital for cases that require specialized attention.

College Discipline

All students are expected to act with dignity and self-respect, to be honest and considerate and to be well-behaved and courteous. Students must observe strict disciplinary standards. The order of the Rector in all disciplinary matters shall be final and legally binding on all students. Proctors will maintain discipline, enforce rules of good conduct and take disciplinary action against students wherever required.

- Students are required to observe rules/regulations governing their studies (both theory & practical) as may be made from time to time.
- Students are expected to attend every lecture and laboratory session of classes in which they are enrolled.
- Acts of dishonesty and cheating specially during examinations are strictly prohibited.
- Students are required to abstain from undesirable behaviour that poses a threat to any fellow student, faculty or staff member or any other person working as an employee of the college. Behaviour that disrupts the normal flow of academic work or co-curricular activities is prohibited.
• Destruction, defacement or damage caused to college property shall be severely dealt with.

• Possession, use or consumption of alcoholic beverages, hard liquor or drugs on the college campus is strictly forbidden.

• Possession of weapons of any kind is strictly forbidden.

• Cigarette smoking within the college premises is strictly forbidden.

• Students are required to wear the college uniform when they are on campus. Winter uniform for boys consists of a navy blue blazer or navy blue full sleeve sweater, white shirt, steel grey trousers, blue and white-striped necktie and black shoes. Summer uniform for boys is steel grey trousers, white shirt and black shoes. Winter uniform for girls consists of white shalwar and kameez, navy blue dupatta, navy blue blazer or navy blue full sleeve sweater and black shoes. In summer the uniform for girls is white shalwar and kameez, navy blue dupatta and black shoes/sandals.

• All students must carry their Identity Cards while they are in college, and produce the Identity Card on demand.

• Entry of cars, motorcycles and bicycles in the “academic area” during college hours is prohibited. Students are required to park their vehicles only at the designated parking places.

The Student Handbook outlines these policies more fully and discusses the penalties for violation of these college disciplinary rules.
Medium of Instruction

Students entering the baccalaureate program with deficiencies in English Language skills will be required to enroll in 1-5 Special English Courses designed to help such students succeed.

Degree Requirements

I. Bachelors of Arts Degree (Honors)

The following requirements must be fulfilled by all students in order to qualify for formal recommendation by the faculty for the Bachelor of Arts (Honors) Degree:

1. The satisfactory completion of 130 credit hours with a cumulative grade point average (GPA) of 2.0 or better. At least 48 credit hours must be in courses labeled as upper division courses.

2. The satisfactory completion of the General Education Requirement

   a. General Education Distribution Requirement

      Satisfactory completion of at least 51 credit hours in courses approved as part of the General Education programme, including courses in each of the following curricular divisions as noted below:

      | Courses                              | Credit | Hours |
      |--------------------------------------|--------|-------|
      | 1) Written and Oral communication    |        |       |
      | (English, Urdu, and Speech courses)  | 3      | 12    |
      | 2) Physical or Natural Sciences      | 4      | 12    |
      | 3) Social or Behavioral Sciences     | 3      | 9     |
      | (Must include Pakistan Studies)      |        |       |
      | 4) Humanities and the Arts           | 3      | 9     |
      | (Must include Islamic Studies/Ethics)|        |       |
      | 5) Information Technology and Mathematics| 3      | 9     |
      | (Must include one computer science course) |

   b. Demonstrated Competencies

      By the end of the second year, a student must demonstrate competency in five areas as determined by performance on college assessment examinations:

      1) Competence in written communication in Urdu
      2) Competence in written communication in English
      3) Competence in oral communication in English
      4) Quantitative competency
      5) Information Technology competency

3. The completion of a major field of study from the list of 17 majors offered by the college. For the Bachelor of Arts degree, the major must include at least 36 credit hours in that subject including those courses specified by the department as required for each student who majors in the discipline.

4. The satisfactory completion in the Senior year of a comprehensive examination in the major field of study.

   Academic Policies
II. Bachelor of Science (Honors) Degree

1. The satisfactory completion of 130 credit hours with a cumulative grade point average (GPA) of 2.00 or better. At least 48 credit hours must be in courses labeled as upper division courses.

2. The satisfactory completion of the General Education requirement (See I.2a and I.2b above)

3. The completion of a major field of study from the list of 17 majors offered by the college. For the Bachelor of Science Degree, the student must choose a major in one of the natural or physical sciences and complete at least 48 credit hours in that subject including those courses specified by the department as required for each student who majors in the discipline.

4. The satisfactory completion in the Senior year of a comprehensive examination in the major field of study.

III. Bachelors of Education (Honors) Degree

1. The satisfactory completion of 130 credit hours with a cumulative grade point average (GPA) of 2.00 or better. At least 48 credit hours must be in courses labeled as upper division courses.

2. The satisfactory completion of the General Education requirement (See I.2a and I.2b above)

3. The completion of a major field of study in the field of Education or in a teaching discipline. For the Bachelor of Education Degree, the student must complete at least 36 credit hours in that subject including those courses specified by the department as required for each student who majors in the discipline. The major will include a student teaching experience as professional preparation for the job.

4. The satisfactory completion in the Senior year of a comprehensive examination in the major field of study.

IV. Bachelors of Science in Business (Honors)

1. The satisfactory completion of 130 credit hours with a cumulative grade point average (GPA) of 2.00 or better. At least 48 credit hours must be in courses labeled as upper division courses.

2. The satisfactory completion of the General Education requirement (See I.2a and I.2b above)

3. The completion of a major field of study in business or management. For the Bachelor of Science in Business Degree, the student must complete at least 64 credit hours in that subject including those courses specified by the department as required for each student who majors in the discipline.

4. The satisfactory completion in the Senior year of a comprehensive examination in the major field of study.
V. Bachelors of Computer Science/Information Technology

1. The satisfactory completion of 130 credit hours with a cumulative grade point average (GPA) of 2.00 or better. At least 48 credit hours must be in courses labeled as upper division courses.

2. The satisfactory completion of the General Education requirement (See I.2a and I.2b above)

3. The completion of a major field of study in business or management. For the Bachelor of Computer Science or Bachelor in Information Technology Degree, the student must complete at least 64 credit hours in that subject including those courses specified by the department as required for each student who majors in the discipline.

4. The satisfactory completion in the Senior year of a comprehensive examination in the major field of study.

III. Bachelor of Arts and Bachelor of Sciences (Conventional)

1. In order to graduate with a Bachelor of Arts or a Bachelor of Science (Conventional) Degree a student must complete at least seventy-two (72) credit hours with an accumulated grade point average of 2.00 or better.

2. The satisfactory completion of the General Education Requirement (See I.2a and I.2b above)

3. Have a concentration of at least six (6) courses plus a project in one field of study (academic department).

The General Education Distribution Requirement

This section is an elaboration of the requirement noted in Section I.2a. above. The purpose of the General Education requirement is to introduce students to a broad range of intellectual pursuits, to provide sufficient breadth of knowledge to prepare them for their role as citizens, to equip them with communication and analytical skills, to help them to integrate knowledge that comes from different disciplines, and to prepare them for a lifetime of self-directed learning.

There are two components of the General Education requirement. First, students must take a total of 51 credit hours taken through courses in each of the five general divisions of the academic program. Second, by the end of the second year, students must demonstrate competency as determined by performance on college assessment examinations in the following five areas: 1) written communication in Urdu; 2) written communication in English; 3) oral communication in English; 4) quantitative skills, and 5) information technology.
Students must complete the designated number of credit hours in each of the five divisions of the curriculum listed below.

1. Communication  12 Credit Hours
2. Humanities      9 Credit Hours
3. Social or Behavioral Science  9 Credit Hours
4. Physical or Natural Science  12 Credit Hours
5. Mathematics/Information Technology  9 Credit Hours

Within each division the courses selected must come from at least two different disciplines.

**Communications**

All students must complete

Written Communications:  1) English 101 – Writing and Grammar
                        2) English 103 – Advanced Writing Skills
                        3) Urdu 101 – Communicative Urdu

Oral Communications:  4) Mass Comm 100 – Fundamentals of Speech

Students who believe that they have the knowledge and skills necessary to pass the competency examinations in written Urdu or written English or spoken English may take the competency examinations at the beginning of the Freshman year. If they pass the competency examinations they will be exempt from the relevant specific required course, and they may, instead, take advanced courses in communication.

**Humanities**

A student must take one course in Islamic Studies/Ethics plus two courses selected from the following disciplines: English, Urdu, History, Islamic Studies, Religion, Philosophy, Foreign Languages, Art, Music, Drama, Mass Communication.

**Social or Behavioral Sciences**

Students must take Pakistan Studies and at least two courses in the following disciplines: Economics, Education, Geography, Health & Physical Education, Pakistan Studies, Political Science, Anthropology, Psychology, Sociology.

**Physical or Natural Sciences**

Students must take a total of three courses with at least one course in the Physical Sciences and one course in the Natural Sciences.

Physical Sciences: Chemistry, Physics
Natural Sciences: Biological Science, Botany, Zoology

**Mathematics and Information Technology**

Students must take one course in computer science/information technology, plus at least two courses selected from the following: Computer Science and Information Technology, Mathematics, Statistics. If a student is able to demonstrate competence in information technology by passing the college competency examination in that area, he or she may replace the course in computer science with another course in this division.

**Majors and Areas of Concentration**

Students must complete the requirements of a major field of study in order to graduate. The number of credit hours required for the major varies depending upon the degree
selected by the student, but it will be no fewer than 36 credit hours and no more than 64 credit hours. There are 17 different majors offered at Forman Christian College and brief descriptions of the course offerings and the specific courses required for each major are included under each discipline heading in the course description section of this catalogue.

Majors are offered in Biological Science, Business, Chemistry, Computer Science/Information Technology, Economics, Education, English, Geography, History/Pakistan Studies, Religious Studies, Mass Communications (Journalism), Mathematics, Physics, Psychology, Political Science, Statistics, Urdu.

Students who choose to complete only the Bachelors of Arts (Conventional) or Bachelor of Science (Conventional) must complete a concentration of six courses plus a project in a single academic discipline. The six courses may include courses taken in order to fulfill the General Education requirement.

**Academic Credit**

Credit towards a degree is awarded for satisfactory course completion, independent study or academic work certified by another accredited degree granting institution.

A credit hour identifies a contact hour which a student has to attend in class work, or two contact hours a student has to attend in the laboratory, studio or field work each week in a regular semester. Thus, a three credit course will meet for three hours per week, or two hours of lecture and two hours of laboratory per week.

Ordinarily credit is earned by course completion. A normal full-time academic load is five courses (15 credit hours) per semester. A student may take a minimum of 12 semester credit hours or a maximum of 18 semester credit hours and still be considered a full time student. If a student enrolls in fewer than 12 credit hours, he/she is considered to be a part-time student. Enrollment of more than 18 hours is very rare, and requires the approval of the Vice Rector, and the payment of additional tuition.

Credit may be earned through independent study by advanced students who exhibit both the self-discipline and mastery of the methods demanded by the subject matter selected by the student. An independent study project is designed by a student in consultation with the professor who is to supervise and evaluate the work. An academic contract, made in advance, specifies the subject and method of inquiry, the texts, the purpose of the project, and the basis of evaluation and credit. Each contract must be approved by the Vice Rector. Independent study forms are available from the Office of the Assistant Vice-Rector.

Credit is earned by migration or transfer from another degree-granting institution recognized by the Higher Education Commission or accredited in the USA or UK, up to a limit of 64 credit hours. A student migrating to Forman Christian College from another institution should request a transcript of work done in the other institution be sent to the Assistant Vice-Rector. When the transcript has been evaluated, the applicant is notified of the credit accepted by migration/transfer.
Forman Christian College recognizes that many experiences outside the classroom may contribute to a student’s program. Internships, participation in community projects, and field experience may be accorded credit if closely coordinated with the student’s academic program. Such experience ordinarily constitutes a part of a regular course or independent study project.

### The Grading System

The standard grading system of the college is A (Superior Work), B (Good Work), C (Satisfactory Work), D (Poor Work), and F (Unacceptable Work). All courses in which a grade of C or higher has been earned shall count toward fulfilling degree requirements. A course in which a D grade is earned may fulfill degree requirements only when a grade of B or higher is earned in another full course.

The student’s Grade Point Average (GPA) is computed on the basis of awarding 4.0 quality points for a grade of A; 3.0 quality points for a grade of B; 2.0 quality points for a grade of C; 1.0 quality points for a grade of D; and 0 quality points for a grade of F. The student must earn a Cumulative Grade Point Average of 2.00 in order to graduate.

A grade of I (Incomplete) indicates that all course requirements are not complete by the end of the semester and that, in the judgment of the instructor, extension of deadline is appropriate. Unless an earlier deadline is set by the instructor, a student will have six weeks from the end of the semester to complete the required work. If the work is not completed by that time, or the shorter deadline imposed by the instructor, the Incomplete will automatically become an F grade.

Students have up to six weeks in the semester to drop a class without a grade appearing on their transcript. After six weeks, if a student drops a class the professor will assign the grade of “WP” (Withdrawal Passing) to indicate the student was passing the course when he/she withdrew; or the grade of “WF” (Withdrawal Failing) to indicate the student was failing the course at the time of withdrawal. Neither the “WP” nor the “WF” grade is calculated in the student’s Cumulative Grade Point Average (GPA).

All grades are reported to students and entered on the official record of the college. Grades of F will not be removed from the transcript. A notation will be recorded on the transcript of any substitute grade earned if a student repeats a course a second time.

### Class Attendance

Students are expected to attend all classes and laboratory sessions in courses for which they are registered. Students who miss classes are far less likely to succeed in meeting the requirements of the course. Each teacher outlines his or her expectations for class attendance in the course syllabus. Teachers are expected to keep accurate records of student attendance. If a student does not attend a minimum of 67% (or the percentage set by the instructor on the course syllabus) of the class and laboratory sessions, he/she will not be permitted to take the final examination in the course.
Special English Courses

For students entering the baccalaureate program with weak English skills, a special program has been put together. Students will enroll in from one to five special English courses designed to help such students succeed. The number of courses will depend upon the student’s performance in the English Language Skills assessment at the time of the admission interview. Such courses cannot count for credit and thereof some students may require an additional semester or one or two summer semesters to get done with all the graduation requirements. The special courses include the following:

ENGL 001: Reading Comprehension
ENGL 002: Basic Writing Skills
ENGL 003: Introductory Phonics
ENGL 004: Vocabulary Skills
ENGL 005: Speaking Skills
Normal Progress

Forman Christian College has high standards for student performance because we believe that performing at an excellent level in course work is good preparation for leadership opportunities following College. We ask our students to do their very best, and we will monitor student performance to help students be aware if a problem is developing.

Normal progress toward graduation is the completion of five courses each semester with a grade of C or better.

Academic Review Committee

At the close of each semester the Academic Review Committee reviews the progress of every student who fails a course, receives a voluntary withdrawal (W), has more D grades than B or better grades, is on academic probation, or is otherwise identified as not making satisfactory progress. The Committee may place on probation or dismiss any student who in its judgment is not making satisfactory academic progress. In making such judgments, the Committee is guided by the following standards and notifies the student of its decision.

Academic Probation

First year students who have earned fewer than 35 credit hours will be placed on probation if their GPA falls below 1.50.

Second year students who have earned between 36 and 64 credit hours, will be placed on probation if their GPA falls below 1.75.

Students who have earned 65 or more credit hours will be placed on probation if their GPA falls below 2.00.

Students placed on academic probation are notified of this action by the Academic Review Committee and advised of how to remove the probationary status.

Students may enroll in up to five courses per semester during the probation period.

Suspension from Co-curricular and Sports Activities

A student placed on academic probation or subject to dismissal for a second consecutive semester is suspended from participation in co-curricular or sports activities so that the student may devote full time to study.
Removal from Academic Probation

Probationary status remains in effect until the student completes four courses in Forman Christian College in one semester with C or better grades and the overall number of B or better grades at least equals the number of D grades.

Dismissal from College

A student who accumulates five or more F grades, or a combination of F and W grades that results in falling behind normal progress by seven courses or more, or five or more D than B or better grades, is dismissed for at least one semester.

Students dismissed for academic reasons are notified in advance of the next regular semester by the Academic Review Committee. This notice also advises the student whether and, if so, when and how to be considered for re-admission.

To apply for re-admission after dismissal, a student should write to the Assistant Vice-Rector, who shall obtain the approval of the Vice Rector as chair of the Academic Review Committee before authorizing readmission.

Second Dismissal

A student who is re-admitted after having been dismissed for a limited period of time for academic reasons shall be admitted on probation, but is dismissed again if he or she accumulates an additional two F grades, or a combination of F and W grades that results in falling behind normal progress by more than two courses, or three more D than B or better grades.

Withdrawals from the College

If a student wishes to withdraw from the College during a semester, he/she should indicate the desire to withdraw with the Assistant Vice-Rector and complete the necessary form. The Assistant Vice-Rector will notify the professors involved and, if the withdrawal is after six weeks of classes, the grades of “WP” or “WF” will be applied to the student’s transcript.

If the student does not give notice of withdrawal, he or she will receive a grade of F for each course in which he or she is enrolled.
The Vice Rector’s List

The Vice Rector’s List is published following the fall semester and the spring semester and includes students who completed at least four courses with a grade point average of 3.75 or better. Students with incomplete grades at the time of publication are not eligible.

Honors at Graduation

Forman Christian College awards diplomas with Honors to a few students in each graduating class. The criteria and designation for graduation with Honors are

- Summa Cum Laude (Highest Honors) 3.9 GPA or above
- Magna Cum Laude (High Honors) 3.70 to 3.89 GPA
- Cum Laude (Honors) 3.50 to 3.69 GPA

Migration (transfer) students are not eligible to graduate with Honors unless they have completed more than half of their graduation requirements at Forman Christian College.
Registration dates are published in the academic calendar. Upon completion of the registration procedures as outlined in the registration materials provided by the Office of the Assistant Vice-Rector, the student's registration is approved by the Accounts Department and the Assistant Vice-Rector.

All courses for which the student wishes to register for credit must be listed on the official registration form. The student is responsible for every course listed and can receive no credit for courses not listed on this form. After registration day, official changes in registration may be made only through official drop/add cards approved by instructors whose courses are involved. Unless a course is officially dropped, a grade of F will be assigned if the student fails to meet the obligations of the course. No course may be added after the drop/add deadline.

**Cancellation of Courses**

Courses may occasionally be cancelled because of low enrollment; however, if a course is cancelled, students will be notified in advance and assisted with arranging a satisfactory substitute.
Learning Objectives

The Department of Biological Science offers one of the broadest and most comprehensive undergraduate program in plant science in Pakistan. It is designed to offer a broad, general training in plant science and research specialization and to meet the needs of students preparing for post-graduate work.

- To master the concepts and principles of Biological Science and to be able to interpret graphs, diagrams and charts.
- To execute lab procedures within an acceptable range of error.
- To write about scientific concepts and results, prepare a well-organized oral scientific presentation and be able to defend the conclusions and use computer software to organize and to present data in tables and graphs.
- To effectively employ electronic databases to conduct a scientific literature search.
- To have the knowledge and skills necessary for the intelligent performance of major tasks required at the entry level of the field.

Requirements For The Major

A total of 48 credit hours in biological sciences: 24 credit hours of BIOL 201, 202, 203, 204, 301, 302, 303, and the remaining 24 credit hours from BIOL 205, 313, 317, 402, 404, 451, 461,**499, BTNY 207, 304, 315, 319, 321, 403, 455, 457, 459, 463, 469, 471, 473, 475, ZOOL 302, 303, 304, 403, 405, 406, 407, and 408.

**Students with cumulative GPA 2.5 or above will be eligible for research. Students with CGPA less than 2.5 will have to take TWO additional courses from electives listed for Biological Science Majors.

Students majoring in Biological Sciences must take 8 credit hours of Chemistry courses in consultation with faculty advisor.

Requirements For The Minor

8 credit hours of mandatory courses and eight (8) credit hours at the 300 and 400 levels selected in consultation with the Faculty Advisor. An intention to minor in Biological Sciences must be declared prior to the Junior Year.

Course Descriptions

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 the 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. Department of Biological Sciences
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 structure-function relationship of plants, basic principles of genetics and molecular genetics, biotechnology and its use in modifying plants. Ecosystem, environmental issues and the relevance of flowering plants in human life are also examined.

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, an effect of environment on human health.

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.

BIOL 105: General Zoology (4 credits)
Only for students who have studied biology in higher secondary school/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.

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.

BIOL 202: Diversity in Plants (4 credits)
This course deals with the classification of organisms; survey of algae, fungi and various groups of plants with emphasis on evolutionary trends.

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.

BIOL 204: Diversity in Animals (4 credits)
Classification and phylogenetic relationship of various groups of animals, an overview of all major groups of invertebrates and chordates (general survey of animal kingdom).

BIOL 205: Biostatistics (3 credits)
Introduction to statistics including mean, mode, median, standard error & standard deviation, probability and test of significance, correlation, analysis of variance, regression and experimental design.

Department of Biological Sciences
BTNY 207: Economic Botany (3 credits)
The course will cover the study of plant from their economic point of view. The improvement of plants for better yield of their economic products and the strategies for the domestication and preservation of economic plants. Plants as a source of food; beverage, herbs and spices; medicinal plants; psychoactive plants; poisonous and allergy plants; fibers, dyes, tannins; hydrogel, latexes and resins, wood cork and bamboo. Cultural and molecular approaches to improvement of economic products and domestication and preservation of economic plants.

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 appreciation of physiological processes as they relate to the plant survival and adaptability.

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.

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.

BIOL 313: Biochemistry (3 credits)
Prerequisite for non-science students: CHEM 110

BIOL 317: Environmental Biology (3 credits)
Applied aspects of ecology like environmental degradation, pollution & deforestation, which are major human concern today, is the theme of this course. Emphasis will be on the role of plants in conservation of nature and biodiversity.

BTNY 304: Integrative Plant Anatomy (3 credits)
This course is designed to acquaint the students with the study of plant structure. Emphasis is laid on the complementarity between structure and function and between structure and environment. Central theme of this course would be integration of plant anatomy with other fields.

BTNY 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 sciences and basic research.
BTNY 319: Mycology (4 credits)
Prerequisite for non-biology students: BIOL 202
This course will deal with the study of structural specialization, diversity, and economic importance of fungi. The lab work shall encompass maintenance of pure cultures and isolation of fungi from various sources.

BTNY 321: Phycology (4 credits)
Prerequisite for non-biology students: BIOL 202
Biology & diversity of algae, their importance in fresh water and marine communities, economic importance. Use of algae as models for study of biological questions. Students should become familiar with common freshwater and marine algae. Lecture & laboratory, field trips.

ZOOL 302: Evolution, Palaeontology and Zoogeography (4 Credits)
Prerequisite: BIOL 204

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

ZOOL 304: Developmental Biology and Animal Behavior (4 credits)
Prerequisite: BIOL 302
Study of the early stages of development involving the cellular basis of morphogenesis in representative animals; fundamentals of behavior, Innate and learning orientation, feeding and social behavior, animal communication, physiological basis and evolution.

BIOL 402: Limnology (4 Credits)
Prerequisite: BIOL 302
The structure and physiological characteristics of freshwater bodies, relationship of living and nonliving substances, composition of sewage and drainage water and their cleaning mechanisms.

BIOL 404: Conservation Biology (4 Credits)
Prerequisite: BIOL 302
The philosophy and significance of wildlife conservation; effects of industrialization, agriculture and urbanization on wildlife; wildlife rules and regulations; wildlife sanctuaries, game reserves and national parks; endangered species; international conventions.
BIO L 451: Molecular Genetics (4 credits)
Prerequisite: BIOL 203
This course will include principles of genetic engineering, applications of genetic in plant improvement, molecular study of mutation and recombination. Gene regulation and differentiation. Step by step concept of mechanisms present from gene to phenotype shall be studied. Construction of genomic libraries, transgenic proteins and basic cloning experiments considering human and plant genome project shall be studied.

BIO L 461: Fundamentals of Biotechnology (4 Credits)
This course will examine cloning, DNA finger printing, molecular forensic, transgenic organisms, green engineering and bioremediation; bioprocess and metabolic engineering, bioinformatics, functional genomics and proteomics; use of biotechnological advances towards solving real problems. Students will discuss problem-solving strategies from current literature in the area of medicine, agriculture, environmental protection/restoration and industrial biotechnology. Advance techniques in biotechnology such as PCR, hybridization experiments, chromosomal walking etc. shall also be covered.

BIO L 499: Research (5 Credits)
Students with cumulative GPA 2.5 or above will be eligible for research. Students with CGPA less than 2.5 will have to take TWO additional courses from electives listed for Biological Sciences Majors.

BT NY 403: Plant Physiology (3 credits)
Prerequisite 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.

BT NY 455: Advanced Plant Anatomy (4 credits)
Prerequisite: BT NY 304
Application of comparative plant anatomy and developmental plant anatomy. Use of plant anatomy in solving important problems.

BT NY 457: Plant Tissue Culture (4 credits)
Prerequisite: BIOL 201

BT NY 459 Stress Physiology (4 credits)
Prerequisite: BT NY 403
Stress and stressful environment. Some principles of plant responses to environment, drought stress, salt stress, temperature stress, irradiation stress and allelochemical stress.
BTNY 463: Palaeopalynology (4 credits)
Prerequisite for non-biology students BIOL 202
Introduction, scope and importance with emphasis on geological time scale. Rock types, polymorphs in oil & gas explorations, geochronology. Vegetational analysis from pollen data, stratogeographic leak, post depositional alteration of Palynomorphs, coal formation and classification of Gondwandelaland Palynofloristics.

BTNY 469: Plant Pathology (4 credits)
Prerequisite for non-biology students BIOL 202
This course deals with basic principles of plant pathology, disease symptoms, groups of plant pathogens and plant diseases; diseases of economically important plants; methods of plant disease control.

BTNY 471: Conservation and Management of Environment (4 credits)
This course will examine the human impact on environment and ecosystem; energy in human affairs; land use and sustainable agriculture; water management; controlling pollution, solid and hazardous waste management; conservation of biodiversity; environmental ethics, policy and decision making.

BTNY 473: Industrial Microbiology (4 credits)
Prerequisite: BTNY 315
This subject is designed to extend the student's understanding and appreciation of the attributes of micro-organisms and the applications of modern techniques in the applied areas of industrial and environmental microbiology. It will also develop an advanced understanding of the applications of micro-organisms to the industrial production of foods and other useful products.

BTNY 475: Environmental Bacteriology (4 credits)
Concept of sustainability with reference to interaction between the environmental and microbial species. Pollution control. Effect of heavy metals, their genetic toxicity and microbial resistance. Bioremediation, types of environmental deteriorating microbes. Molecular approach for environmental management.

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.

ZOOL 405: Animal Nutrition (4 Credits)
Prerequisite: BIOL 302
Energy requirements, chemistry of feed ingredients, their source, and metabolism; ingredient constraints, feed additives, toxins and contaminants; water intake and metabolism, specifications and manufacturing of animal feeds.
ZOOL 406: Ornithology (4 Credits)
Prerequisite BIOL 302
Features of bird life. The skeleton of birds, the musculature types, flight feeding mechanism, syrinx and songs, system of bird behavior, evolution and migration of birds, classification of birds with special reference to the fauna of Pakistan.

ZOOL 407: Fish Diseases and Management (4 Credits)
Prerequisite BIOL 302
Bacterial, viral and fungal infections and diseases among fishes. Diseases caused by protozoans, worms, different types of food and the environments. Remedial and pathological care.

ZOOL 408: Entomology (4 Credits)
Prerequisite BIOL 302
Origin of insects, morphology, anatomy, natural habitat, social behavior, appendages, life histories, economic importance, biological control of pests.
Learning Objectives

- To master the basic concepts and principles of business and management
- To provide the knowledge and skills necessary for the effective performance of the major tasks in entry level positions in business and industry and for rapid advancement to higher levels of responsibility in the organization
- To develop the values and work habits important to the future success of Pakistani businesses in the global economic environment. Graduates should embrace the values of integrity, rigor, hard work, justice, decisiveness, courage and endurance. They will be prepared with the knowledge, skills and tools for rational analysis, planning, management control and intelligent decision-making.

Course Descriptions

Freshman Year - Fall Semester
BUSN 101 Principles of Financial Accounting (3 credits)
Understanding of accounting records; entering transactions; applying accounting concepts, principles and practices; reading financial statements.

BUSN 170 Principles of Management (3 credits)
Basic management concepts, tools, and techniques for improving organizational efficiency and effectiveness. Management process consisting of planning, organizing, staffing, directing, coordination, reporting and budgeting (PODSCORB) is the primary focus of this course.

Spring Semester
BUSN 121/ECON 101 Microeconomics (3 credits)
Fundamentals of economics including price theory and applications, industry and market structure, equilibrium analysis and welfare economics.

BUSN 160 Business Communications (3 credits)
Introduction to verbal and written communication theory and practice. Focus is on individual oral and written skills in letter and memo writing, use of emails, presentations and preparing reports. There is a strong emphasis on interactive learning.

Sophomore Year - Fall Semester
BUSN 201 Intermediate Accounting 1 (3 credits)
Develop a deeper understanding of the concepts, standards and principles underlying various accounting practices and techniques in order to develop higher level accounting competencies.

BUSN 206 Management Accounting (3 credits)
Prepares students to use accounting information, especially costs, to make management decisions. Cost accounting information; role of budgeting to facilitate rational decision-making are some of the topics discussed in this course.

Department of Business Management
BUSN 280 Marketing & Selling Skills (3 credits)
Basic tools and skills to develop an effective marketing orientation for developing and marketing products and services. Identifying problems and solutions and application of concepts is integral to the course. There is also a strong emphasis on the development of selling skills.

Spring Semester
BUSN 202 Intermediate Accounting 2 (3 credits)
This course is an extension of the concepts of BUSN 201 and focuses on the regulatory framework, reporting requirements, group accounts, and corporate financing.

BUSN 225 Economic Applications for Business (3 credits)
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.

BUSN 250 Individual & Group Dynamics (3 credits)
Investigates the impact of individuals, groups, and structures on behavior within a formal organizational context and applies knowledge to improve the effectiveness of the organization. Concepts include leadership skills, team structures and dynamics, managing interpersonal relationships and conflicts.

Junior Year - Fall Semester
BUSN 301 Financial Reporting (3 credits)
Prepares students to generate accounting information needed by different stakeholders; leasing, stakeholder’s equity, earnings per share, financial instruments such as government securities and bonds.

BUSN 305 Corporate Governance (3 credits)
This course focuses on the critical issue of governance in corporations, spanning issues related to regulation, fiduciary responsibilities, agency problems and conflicts, and the structures and systems which can be used to improve governance in organizations.

BUSN 321 Financial Management 1 (3 credits)
Introductory course focuses on tools, techniques and concepts. Topics include financial analysis, short and long-term financing, capital budgeting, risk analysis, and the role of financial markets and intermediaries.

Spring Semester
BUSN 322 Financial Management 2 (3 credits)
This is an advanced finance course continuing on from BUSN 321. It focuses on issues of corporate finance, dividend policy, capital structure, international financial instruments, debt and equity valuation and the role of hybrid securities.
BUSN 360 Operations & Project Management (3 credits)
This course focuses on evaluation and implementation of projects within organizations, as well as managing operational structures and systems to achieve organizational goals and objectives.

BUSN 364 Management Information Systems (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.

Senior Year - Fall Semester
BUSN 401 Principles of Auditing (3 credits)
The fundamentals of auditing; issues of ethics; role of audit firms in conducting audits are discussed in this course.

BUSN 404 Taxation (3 credits)
Focuses on analyzing the law pertaining to taxation and tax structure. Emphasis is on corporate taxation.

BUSN 460 Business Law (3 credits)
Introductory course on laws pertaining to the functioning of business with strong emphasis on theory and practice in Pakistan. Includes some elements of tax law and labor law.

Spring Semester
BUSN 465 Management Control Systems (3 credits)
A continuation of concepts from BUSN 206, with strong emphasis on the structures and systems organizations introduce for effective control to improve efficiency.

BUSN 470 Analysis of Institutions (3 credits)
This course focuses on looking at important government institutions like the central bank, tax collecting machinery, etc. The analysis of these institutions will stress structural and functional analysis and their power structures.

BUSN 490 Research Report/Business Game (3 credits)
Students participate in a business game to get a feel for real world management decisions to help them select and analyze managerial issues in their research projects.
Learning Objectives

• To master the concepts, principles and knowledge of chemistry
• To explain the application of the scientific method in chemical research
• To interpret graphs, diagrams and charts from the scientific literature
• To execute lab procedures within an acceptable range of error
• To write about scientific concepts and results, prepare a well-organized oral scientific presentation and be able to defend the conclusions
• To effectively employ electronic databases to conduct scientific research

Requirements For The Major

48 credits including: CHEM 117, 241, 308, 310, 351, 362, 401, 411/412, 431

Course Descriptions

CHEM 100: Introduction to Chemistry (4 credits)
Fundamental principles, laws, and theories of chemistry open for student who have not taken chemistry in F.Sc. or A-Level.

CHEM 110: General Chemistry (4 credits)
Prerequisite: F.Sc. or A-Level Chemistry
Introduces the foundation of chemistry, including electronic structure of atoms and molecules, intermolecular forces, states of matter, chemical reactions, chemical equilibria, kinetics, and acid-base chemistry.

CHEM 114: Introduction to Organic, Inorganic, and Biochemistry (4 credits)
Prerequisite: F.Sc. or A-Level Chemistry
Chemical bonding, Acid-base Chemistry, Nuclear Chemistry, Chemistry of functional groups, Bio-Chemistry.

CHEM 117: Chemistry I (4 credits)
Prerequisite: CHEM 100, 110, 114
Introduction to experimental and theoretical foundations of chemistry, including electronic structure of atoms and molecules, intermolecular forces, states of matter, chemical reactions, gas laws, thermochemistry, and chemical kinetics.

CHEM 118: Chemistry II (4 credits)
Prerequisite: CHEM 100, 110, 114
Introduction to more complex concepts in chemistry, including kinetics, chemical equilibria, acid-base equilibria, thermodynamics, electrochemistry, metals, semiconductors and super conductors.

Department of Chemistry
CHEM 221: Quantitative Analysis (4 credits)
Prerequisite: CHEM 100, 110, 114
Measurements and calculations relevant to volumetric and gravimetric analysis as well as electrochemistry separations. Error analysis and statistical treatment of data. In the laboratory, introduces classical and contemporary techniques that require high quality measurements.

CHEM 240: Principles of Organic Chemistry (4 credits)
Prerequisite: CHEM 100, 110, 114
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.

CHEM 241: Organic Chemistry I (4 credits)
Prerequisite: CHEM 100, 110, 114
A study of the Review of hybrid orbitals, covalent bonding and resonance. Introduction to stereochemistry, infrared and nuclear magnetic resonance spectroscopy, functional group chemistry based on reaction mechanisms, and multi-step synthesis.

CHEM 242: Organic Chemistry II (4 credits)
Prerequisite: CHEM 241
Covers more functional group chemistry based on reaction mechanisms; more involved multi-step synthesis; and topics of specialized interest.

CHEM 308: Industrial Chemistry (4 credits)
Prerequisite: CHEM 100, 110, 114
Characteristics and importance of chemical industries, conversion, efficiency and yield, rationalization, economic and technical feasibilities applied to production of primary intermediates and finished products; urea, calcium super phosphate, ammonium nitrate, nitric acid, sulphuric acid, glass, cement, ceramics, dyes, fertilizers, leather, pulp and paper, metallurgy of aluminium, iron and steel.

CHEM 310: Introduction to Biochemistry (4 credits)
Prerequisite: CHEM 100, 110, 114
Carbohydrates, amino acids and proteins, lipids, nucleic acid, enzymes, metabolism of carbohydrates and protein and lipids.

CHEM 311: Green Chemistry (3 credits)
Prerequisite: CHEM 100, 110, 114
Green chemistry: tools, principles, evaluating effects, feed stocks, starting materials, types of reactions in chemical transformation, evaluation of methods to design safer chemicals, examples of green chemistry and future trends.
CHEM 351: Physical Chemistry I - Thermodynamics and Equilibrium  (4 credits)
Prerequisite: CHEM 100, 110, 114
Ideal and non-ideal gas laws, the kinetic theory of gases, equations of state, liquid-vapor equilibrium, the laws of thermodynamics, solid-liquid-vapor equilibria, the chemical potential, chemical equilibrium, electrochemistry, the phase rule, the phase diagram.

CHEM 352: Physical Chemistry II - Kinetics and Molecular Structure  (3 credits)
Prerequisite: CHEM 351
Chemical kinetics, solid-state chemistry, surface chemistry, atomic and molecular spectroscopy and structure, chemical applications of group theory, elements of quantum mechanics.

CHEM 362: Analytical Chemistry  (4 credits)
Prerequisite: CHEM 100, 110, 114
Introduction to analytical chemistry and analytical methods, role of ultraviolet and infrared radiations in analytical chemistry, instrumental analysis, scope of analytical method in chemistry.

CHEM 401: Environmental Chemistry  (3 credits)
Prerequisite: CHEM 100, 110, 114
Introduction to environment: air pollution, water pollution, noise pollution, solid waste pollution and management.

CHEM 402: Corrosion and Protection  (3 credits)
Prerequisite: CHEM 117, 118, 351
Corrosion types, rates, measurement, and theories; methods of corrosion protection; semiconductor electrodes photo corrosion and its inhibition.

CHEM 403: Electrochemical Power Sources  (3 credits)
Prerequisite: CHEM 117, 118, 351
Fuel cells, batteries, photovoltaic and photoelectro-chemical cells; hydrogen as an energy source - generation and storage.

CHEM 407: Industrial Microbiology  (4 credits)
Prerequisite: CHEM 310
Classification of micro-organisms and their biochemical activities, fermentation, antibiotics and its mechanism, vitamins production by yeast, enzyme production by moulds, food microbiology, food toxins, food processing, microbiology of water and sewage, environmental microbiology and remedial measures.

CHEM 408: Pharmaceutical Chemistry  (4 credits)
Prerequisite: CHEM 310
CHEM 409: Textile Chemistry (4 credits)
Prerequisite: CHEM 241
Chemistry of dyes and fibers; theoretical aspects of dyeing; dyes for cellulosic fibres; dyes for synthetic fibres; and dyeing of fibre blends.

CHEM 410: Research Methodology (1 credit)
Literature survey; report and thesis writing; thesis presentation.

CHEM 411/412: Research Project/ Industrial Training (6 credits)
The research experience may be one of the following:
  a. An independent research course in chemistry.
  b. An off-campus internship for chemistry
  c. A research experience not covered by a & b above but deemed equivalent.

CHEM 431: Inorganic Chemistry (4 credits)
Prerequisite: CHEM 100, 110, 114
Study of the bonding, physical and chemical properties, structure and reactions of the chemical elements and their compounds; both transition metals and main group elements.

CHEM 432: Chemistry of Natural Waters (3 credits)
Prerequisite: CHEM 100, 110, 114
Sources of water, impurities in water, treatments and requirements for obtaining potable water; internal and external treatment of water in boilers for steam generation, international standards for water quality.

CHEM 441: Spectroscopy of Organic Compounds (4 credits)
Prerequisite: CHEM 241
Emphasis on use of spectral data interpretation to determine structures of organic compounds. Discussion of proton and carbon nuclear magnetic resonance (including two-dimensional techniques, COSY, HETCOR, etc.) mass spectrometry, infrared spectrophotometry, use of modern software including NMR spectromodeling, data handling and presentation, and spectral database packages.

CHEM 443: Advanced Organic Chemistry (4 credits)
Prerequisite: CHEM 241
Development of chemical intuition; emphasis on reaction mechanisms. Hetero aromatic chemistry, curved-arrow formalism and multi-step reactions, molecular orbital and symmetry-controlled reactions, Hammet equation and structure-activity relationships, substitution and addition reactions of carbonyl group.

CHEM 451: Advanced Physical Chemistry (4 credits)
Prerequisite: CHEM 351
Selected topics in molecular orbital theory, atomic molecular spectroscopy, thermodynamics, solid state and photochemistry.
CHEM 461: Introduction to Polymer Sciences (3 credits)
Prerequisite: CHEM 100, 110, 114
Introductory study of the properties of polymers dealing with the kinetics and mechanisms of polymerization reactions, structure and characterization of polymers in the solid state, in solution, and as melts. Viscoelasticity, rubbery elasticity, rheology and polymer processing.

CHEM 462: Polymer Chemistry (3 credits)
Prerequisite: CHEM 461
Study of the chemistry of polymers including polymer classification, modification and degradation, methods for measuring and predicting the path of degradation and stabilization.

CHEM 463: Advanced Analytical Chemistry (4 credits)
Prerequisite: CHEM 362
Principles, applications and instrumentation in spectroscopic, chromatographic and hybrid analytical techniques. ICP emission and photoacoustic spectrometry, capillary GC, HPLC ion chromatography, hybrid techniques.

CHEM 471: Chemical Principles in Biology (3 credits)
Prerequisite: CHEM 310
Biochemistry. Emphasis on the interconnections between biology and chemistry and underlying chemical logic of biomolecules and metabolic pathways.

CHEM 480: Current Topics in Chemistry (3 credits)
Prerequisite: CHEM 117, 241
Topics not included in other chemistry courses. May include designing organic syntheses, heterogeneous catalysis, homogenous catalysis, solid-state chemistry, and heterocyclic chemistry.
Learning Objectives

Computing is not just a single discipline. Instead, it has a number of components i.e. computer science, information technology, software engineering, computer engineering and information systems. The curriculum of Forman Christian College will focus on the first three of these disciplines. The objectives are:

- A broad understanding of the concepts, theory and techniques of computer science / information technology.
- Sufficient depth in one discipline of computing to succeed in an entry level position in industry.
- Solid understanding of the basic principles of the discipline, so that a person can acquire new knowledge as advances in the discipline are made.

Requirements for Major

64 credit hours in the discipline for major in CS, IT or SE as given below:

- Computing Core Courses: (Mandatory for Major in CS / IT / SE).
  34 credit hours (excluding CSCS 100) of core computing courses: CSCS 100, CSCS 102, CSCS 111, CSCS 113, CSCS 200, CSCS 204, CSCS 211, CSCS 213, CSCS 300, CSCS 311 and CSCS 400.

- Major in Computer Science (CS): 30 credit hours in the discipline as given below:
  - Core Courses: 18 credit hours from CSCS 223, CSCS 302, CSCS 303, CSCS 340, CSCS 350 and CSCS 355.
  - Elective Courses: 12 credit hours from CSCS 451, CSCS 452, CSCS 453, CSCS 454, CSCS 455, CSCS 456, CSCS 461, CSCS 462, CSCS 463, CSCS 464, CSCS 465, CSCS 466, CSSE 211, CSSE 213, CSSE 300, CSSE 311, CSSE 313 and CSSE 400.

- Major in Information Technology (IT): 30 credit hours in the discipline as given below:
  - Core Courses: 18 credit hours from CSIT 200, CSIT 211, CSIT 300, CSIT 311, CSIT 400 and CSIT 450.
  - Elective Courses: 12 credit hours from CSCS 451, CSCS 452, CSCS 453, CSCS 454, CSCS 455, CSCS 456, CSCS 461, CSCS 462, CSCS 463, CSCS 464, CSCS 465, CSCS 466, CSSE 211, CSSE 213, CSSE 300, CSSE 311, CSSE 313 and CSSE 400.

- Major in Software Engineering (SE): 30 credit hours in the discipline as given below:
  - Core Courses: 18 credit hours from CSSE 211, CSSE 213, CSSE 300, CSSE 311, CSSE 313 and CSSE 400.
  - Elective Courses: 12 credit hours from CSCS 451, CSCS 452, CSCS 453, CSCS 454, CSCS 455, CSCS 456, CSCS 461, CSCS 462, CSCS 463, CSCS 464, CSCS 465, CSCS 466, CSIT 200, CSIT 211, CSIT 300, CSIT 311, CSIT 400 and CSIT 450.
In addition, all students must complete 51 credit hours of general education courses and 15 credit hours of University Elective Courses from discipline(s) of their choice.

**Course Descriptions**

**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.

**CSCS 102: Programming Fundamentals** (4 credits)
To familiarize students with the basic structured programming skills. It emphasizes on problem analysis, algorithm designing, program development and testing.

**CSCS 111: Object Oriented Paradigm** (3 credits)
Prerequisite: CSCS 102
It focuses on object-oriented concepts of modeling, analysis, design, software development and testing.

**CSCS 113: Discrete Structures** (3 credits)
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.

**CSCS 200: Data Structures and Algorithms** (3 credits)
Prerequisite: CSCS 111
Data structures and schemes which enable student to write programs that efficiently manipulate, store and retrieve data. Students are exposed to the concepts of time and space complexity of computer programs.

**CSCS 204: Digital Logic and Computer Architecture** (3 credits)
Prerequisites: CSCS 100
Introduces the concept of digital logic, gates and the digital circuits. Further, it focuses on the design and analysis of combinational and sequential circuits. It also serves to familiarize the student with the logic design of basic computer hardware components.

**CSCS 211: Operating Systems** (3 credits)
Prerequisite: CSCS 200, CSCS 204
The objective of this course is to give students knowledge of construction and working of Operating Systems. To enable students understand 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.
CSCS 213: Database Systems (3 credits)
Prerequisite: CSCS 200
The course aims to introduce basic database concepts, different data models, data storage and retrieval techniques and database design techniques. The course primarily focuses on relational data model and DBMS concepts.

CSCS 223: Computer Organization and Assembly Language (3 credits)
Prerequisite: CSCS 204
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.

CSCS 300: Introduction to Software Development (3 credits)
Prerequisite: CSCS 111
It focuses on various software development models and phases of software development life cycle. The techniques used for requirement analysis, design, implementation and testing are introduced.

CSCS 302: Theory of Automata & Formal Languages (3 credits)
Prerequisite: CSCS 113
To develop an appreciation of the theoretical foundations of computer science through study of mathematical & abstract models of computers and the theory of formal languages. Theory of formal languages and use of various abstract machines as recognizers and parsing will be studied for identifying/validating the synthetic characteristics of programming languages. Some of the abstract machines shall also be studied as “Transducers”.

CSCS 303: Analysis of Algorithms (3 credits)
Prerequisite: CSCS 113, CSCS 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 on the structure, complexity and efficiency of algorithms.

CSCS 311: Computer Communications and Networks (3 credits)
The course will introduce students to the concept of computer communication. Analogue & digital transmission, network layers, network models, (OSI, TCP/IP) and protocol standards. Emphasis is given to the understanding of modern network concepts.

CSCS 340: Systems Programming (3 credits)
Prerequisite: CSCS 204
The course will demonstrate mastery of the internal operation of system software including assemblers, loaders, macro-processors, interpreters and inter-process communication.
CSCS 350: Artificial Intelligence (3 credits)
Prerequisite: CSCS 200
This course focuses on the set of computational tools and techniques which mimic the human decision-making process and capability.

CSCS 353: Numerical and Symbolic Computation (3 credits)
Students will learn to demonstrate programming proficiency using structured programming techniques in suitable programming languages and implement numerical solutions using computer based techniques.

CSCS 400: Senior Software Project (6 credits)
The software project involves 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. The student must also make an oral and written project presentation.

CSCS 451: Compiler Construction (3 credits)
Prerequisite: CSCS 302
It focuses on organization of compilers. Lexical and syntax analysis. Parsing techniques. Object code generation and optimization, detection and recovery from errors and contrast between compilers and interpreters.

CSCS 452: Computer Architecture (3 credits)
Prerequisite: CSCS 204
It focuses on design and evaluation of modern uni-processor computing systems. Evaluation methodology/metrics, instruction set design, advanced pipelining, instruction level parallelism, prediction-based techniques, alternative architectures, memory hierarchy design and I/O.

CSCS 453: Computer Graphics (3 credits)

CSCS 454: Data & Network Security (3 credits)
Prerequisite: CSCS 311
Introduction; Cryptology and simple cryptosystems; Conventional encryption techniques; Stream and block ciphers; DES; The Advanced Encryption Standard. Confidentiality & Message authentication; Hash functions; Public key Encryption. RSA; Digital signatures. Key management schemes; Identification schemes; Dial-up security. E-mail security. Emerging Internet security standards; L and IPsec; VPNs; Firewalls; Viruses.
CSCS 455: Data Warehousing & Data Mining (3 credits)
Prerequisite: CSCS 213
The course aims to introduce database concepts, different data models, data storage and retrieval techniques and database design techniques. The course primarily focuses on Data Warehousing and Data Mining, Emerging Database Technologies and Applications.

CSCS 456: Neural Networks (3 credits)
Prerequisite: CSCS 350
This course provides an introduction to basic neurobiology, discusses the main neural network architectures and learning algorithms, and presents a number of neural network applications. Particular models covered include McCulloch Pitts Neurons, Single Layer Perceptions, Multi-Layer Perceptions, Radial Basis Function Networks, Committee Machines, Kohonen Self-Organising Maps, and Learning Vector Quantization.

CSCS 461: Principles of Programming Languages (3 credits)

CSCS 462: Real Time Systems (3 credits)
Prerequisite: CSCS 340
The course is a survey of issues in the design and implementation of real time computer systems. It is intended to give students a balanced view of theory and practice to measure the execution time of a piece of code, empirically estimate the accuracy and overhead of a real-time scheduler, describe and apply commonly used abstract models and terminology for real-time scheduling and resource management, recognize, classify, and formulate the hard and soft timing requirements of a software system.

CSCS 463: Distributed Database Systems (3 credits)
Prerequisite: CSCS 213

CSCS 464: Visual Programming (3 credits)
Prerequisite: CSCS 111
Introduction to Windows programming, Use of Windows API, MFC Class hierarchy, Class Wizard, Application Wizard and Application Studio, Graphics Device Interface, Menus, document view architecture, Multiple Views, files and archiving mechanisms, converting Windows programs to MFC, Sub-classing controls.
CSCS 465: Geographic Information Systems (3 credits)
This course introduces intermediate and advanced topics in geographic information science and spatial analysis using GIS software, GIS theory, technology and applications. It also focuses on the relationship between GIS and remote sensing.

CSCS 466: Wireless Networks (3 credits)
Prerequisite: CSCS 311
Techniques in design and operation of first, second, and third generation wireless networks: cellular systems, medium access techniques, radio propagation models, error control techniques, handoff, power control, common air protocols, radio resource and network management.

CSIT 200: Introduction to Information Technology (3 credits)
An introduction to databases, DBMS, types of databases, world wide web, web technologies, web based applications; introduction to multimedia, multimedia technologies, multimedia applications; Introduction to computer graphics; digital graphics; animation, graphic technologies; computer networks, internet and intranet, usage of networks, network technologies, social, legal and ethical issues of IT.

CSIT 211: Web Engineering (3 credits)
An overview of web design concepts, including usability, accessibility, information design, graphic design in the context of web, introduction to web site technologies; overview of protocols; TCP/IP/HTTP; overview of 3-tier architecture, web based applications architecture; developing front end applications; front end development tools, HTML, DHTML; scripting (Jscript, VB script, Java Applets, ActiveX).

CSIT 300: Systems Administration (3 credits)
A survey of the tools and techniques used in the administration of computing systems; system installation, booting and halting the system, file systems and directory permission structures; print and disk quotas, device configuration and management, user account administration, security, client administration, disk maintenance, remote access, remote administration, the use of schedulers and the use of advanced scripting to ease system administration tasks.

CSIT 311: Network Management and Security (3 credits)
Prerequisite: CSCS 311
An overview of data communication and network management and security.

CSIT 400: Human Computer Interaction (3 credits)
A background to human-computer interaction using underpinnings from psychology and cognitive science.

CSIT 450: Technology Management (3 credits)
An introduction to technology strategy, corporate strategy, technology transfer, technology strategy development, produce development strategy and innovation process.
CSSE 211: Software Construction (3 credits)
Prerequisite: CSCS 111, CSCS 213
Students will develop the ability to apply a wide variety of software construction techniques and tools, including state-based and table-driven approaches to low-level design of software; design simple languages and protocols suitable for a variety of applications; generate code for simple languages and protocols using suitable tools; design simple concurrent software; analyze software to improve its efficiency, reliability, and maintainability.

CSSE 213: Human Computer Interaction (An SE Approach) (3 credits)
Prerequisite: CSSE 211
Psychological principles of human-computer interaction; Evaluation of user interfaces; usability engineering; task analysis, user-centered design, and prototyping; conceptual models and metaphors; software design rationale; design of windows, menus and commands; voice and natural language I/O; response time and feedback; colour, icons, and sound; internationalization and localization. User interface architectures and APIs.

CSSE 300: Software Design and Architecture (3 credits)
Prerequisite: CSSE 211
An in-depth look at software design. Continuation of the study of design patterns, frameworks, and architectures. Survey of current middleware architectures. Design of distributed systems using middleware. Components based design.

CSSE 311: Software Quality Assurance (3 credits)
Prerequisite: CSSE 211
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; product and process assurance; problem analysis and reporting; statistical approaches to quality control.

CSSE 313: Software Requirements Engineering (3 credits)
Prerequisite: CSSE 211
A study of the role of requirements engineering within the software life cycle. Compare and 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.

CSSE 400: Software Projects Management (3 credits)
Prerequisite: CSSE 211
An opportunity to develop the ability to plan and manage software development projects successfully, maximizing the return from each stage of the software development life cycle.
Learning Objectives

• To instill a thorough understanding of the basic foundations of economics
• To master essential business skills including communication, research, quantitative analysis, teamwork and the use of information technology.
• To provide in-depth knowledge of economics.
• To instill a strong sense of global awareness.
• To instill a strong sense of service, ethics and responsibility to the community.

Requirements For Major

8 Core Courses plus 8 electives out of 19 electives courses. Each course is of 3 credit hours.
Core Courses: ECON 101, 102, 103, 201, 202, 203, 205, 302.

Course Descriptions

ECON 100: Basic Economics (3 credits)
Key concepts of both micro and macroeconomics for students of all disciplines.

ECON 101: Microeconomics I (3 credits)
Introduces basic microeconomic theory. To develop rigorous, logical reasoning this course makes use of simple mathematical and graphical models to analyze the consumer theory, producer theory and markets with both perfect and imperfect competition.

ECON 102: Macroeconomics I (3 credits)
The determination of national income and its growth over time; trade cycles, myths and realities of inflation, unemployment and its costs; monetary, fiscal and trade policies and their implications for the economy within the aggregate demand and supply framework.

ECON 103: Mathematics for Economists (3 credits)
Prerequisite: Math 102 or A-level / Intermediate Math
An introduction to the mathematical tools of algebra and calculus used by economists in writing economic literature and analyzing economic problems; equilibrium analysis, comparative static, optimization problems, dynamic analysis using differential equations and difference equations.

ECON 104: Issues in Pakistan Economy (3 credits)
Problems of Pakistan economy in growth and development, planning, money and banking, fiscal policy, poverty alleviation, income-distribution, corruption, ad hocisms, human capital formation, credit distribution, gender and development planning experience of Pakistan viz-e-viz other developing countries.
ECON 105: Rural Development and Problems of Poverty (3 credits)
The theory, problems and policies of rural and agricultural development in Pakistan; linkages between rural and agricultural development including the theory of rent, dualistic development models, resource use efficiency, technical change, supply response, agriculture and international trade.

ECON 201: Microeconomics II (3 credits)
Prerequisite: ECON 101, 103
A continuation of the basic microeconomic theory course using mathematical and practical models to analyze consumer theory, producer theory and input markets with both perfect and imperfect competition; students move from partial equilibrium analysis to general equilibrium analysis; inter-temporal consumption and investment, welfare economics, public goods and asymmetric information.

ECON 202: Macroeconomics II (3 credits)
Prerequisite: Econ 102, 103
A study of models that determine national income and its growth over time, unemployment, inflation, and short-term economic fluctuations; develop specialized macroeconomic models of developing countries such as dualistic and structuralist, exposing the issues and policy dilemmas faced by these countries.

ECON 203: Statistics for Economists (3 credits)
Prerequisite: STAT 101 or statistics in A-level / Intermediate
Descriptive and inductive statistics; measures of central tendency and dispersion, probability, sampling, estimation, index number, techniques of time series analysis; illustrations will be taken from business and economics relating to hypothesis testing, variance tests, regression and correlation, time series and non-parametric methods.

ECON 204: Islamic Economics (3 credits)
Islamic values and principles related to trade, credit, welfare, management, labor-industrial relations, input and output pricing, hoarding, smuggling, speculation, risk-taking and risk-sharing. Contributions in Development Economics of Abu Yousof regarding the debate on good governance; the functioning of the market system of Ibn-e-Khuladon; comparative analysis of the Islamic and capitalists market systems.

ECON 205: Fundamentals of Econometrics (3 credits)
Prerequisite: ECON 101, 103, STAT 101
The basics of econometrics including the nature of the least-square model, regression analysis, two- and multiple-variable regression analysis, assumptions of the classical model and simultaneous-equations econometric modeling.

ECON 206: Monetary Theory and Policy (3 credits)
Prerequisite: ECON 101, 102
The nature and evolutional development of the current system of money and banking in an economy; the significance and evolution of money and monetary theory from both the supply and demand sides; monetary theories and the causes of inflation such as the quantity theory of money and the Cagan model; strategies for inflation and stabilization; monetary policy in developing countries in the recent past.
ECON 207: Human Resource Development (3 credits)
Theories of human capital formation, management skills, risk-taking behaviors, and incentives for research, development, cooperation and competition in business and commerce; migration, health, education, nutrition, women development and employment problems.

ECON 301: Development and Growth Economics (3 credits)
Prerequisite: ECON 102, 103
Common characteristics of developing countries; models of economic development and theories of structural transformation; analysis of issues in economic development such as education, population, urbanization, agriculture and rural development, trade and macroeconomic stabilization; performance of the economy along with other developing countries will be reviewed; growth models of Harrod-Domar, Kaldor, and Joan Robinson; endogenous growth theory of Pakistan models of technical change and steady-state.

ECON 302: Research Methodology and Computer Applications in Social Sciences (3 credits)
Prerequisite: ECON 101, 102, 103, 203
Methods of research, techniques of investigation in literature review, questionnaire and research designing, sampling and report writing; research will be undertaken at the micro and macro levels both qualitative and quantitative; training in scientific and rational thinking.

ECON 303: Environmental Economics (3 credits)
Analysis of market mechanisms that allocate energy, labor, capital and natural resources; models for optimum use of resources across users and time; effects of economic activity on the environment.

ECON 304: Introduction to Managerial Economics (3 credits)
Prerequisite: ECON 101, 102
An analysis of a firm's management processes; consumer and producer theory in various market structure using quantitative analysis; evolution of modern firm, risk analysis, capital budgeting and project analysis.

ECON 305: Fiscal Theory and Policy (3 credits)
Prerequisite: ECON 102
Concepts used in taxation, resource mobilization for the public sector, role of the government in economic development; macroeconomic theories relevant to the relationship between government expenditures, stabilization and economic development; public debt; debt modeling and debt laffem curve; theory of public goods, tax shifting and incidence, development finance.

ECON 306: History of Economic Thought (3 credits)
Prerequisite: ECON 201, 202
Evolution of economic thought from ancient Greek and Roman medieval times to the doctrines of Ibn Khuladon, Mercantilists, and Physiocrates; the change offered by the Marginalist School of Thought to the classical economists; Keynesian, Monetarists, Schumpeterian, Veblen's and modern schools of thought.
ECON 307: International Trade Theory and Policy (3 credits)
Prerequisite: ECON 101, 102
Theories, models and instruments that govern international trade, the political economy of international trade and the experiences of developing and industrial countries; the balance of payments and the exchange rate determination; a review of international monetary system and the international institutions that influence trade policies such as the IMF and the WTO; implications of international flow of funds and debt crises.

ECON 308: South Asian Economies (3 credits)
Prerequisite: ECON 301
Comparative economic performance of India and Pakistan, Sri Lanka and Bangladesh.

ECON 402: Project Planning and Appraisal (3 credits)
Prerequisite: ECON 101, 102
Concepts used in project preparation, feasibility and evaluation such as discounting, field surveys, measurements, data analysis, and report writing; sources of finance for development projects.

ECON 403: Time Series Econometrics (3 credits)
Prerequisite: ECON 205
Tools employed in the analysis of time series data; econometrics of unit-root, auto regressive moving average, autoregressive conditional heteroscedasticity, generalized auto regressive conditional heteroscedasticity and vector autoregressive processes; theories of integration, co-integration and error correction.

ECON 404: Money and Capital Economics (3 credits)
Prerequisite: ECON 206
Market behavior of commercial banks, private money lenders and borrowers, development financial institutions, stock exchange, bonds and securities in the private and public sectors and commercial transactions in the international market.

ECON 405: Globalization (Special Reference to South Asia) (3 credits)
Prerequisite: ECON 307
Theories of international trade, regional trade organizations and rules and regulations of the WTO, relevance to South Asia as one of the largest regions in the world.

ECON 406: Introduction to Game Theory (3 credits)
Prerequisite: ECON 101, 201, 205
Non-cooperative game theory and its applications to economics; theory of static and dynamic games under perfect and imperfect information; refinements of Nash equilibrium.

ECON 407: Research Project and Paper Writing (3 credits)
Prerequisite: ECON 101, 102, 205
Students will conduct a research project on any topic of social and economic significance, working on primary and secondary data, and resulting in a paper on the work that may be publishable.
Learning Objectives

• To be able to recognize patterns of physical, social, emotional and cognitive development in students.
• To identify and meet the learning needs and abilities of all children.
• To implement a wide range of instructional strategies to translate content into developmentally appropriate classroom activities.
• To analyze data from classroom observations to improve effectiveness in instruction.
• To interpret student and classroom observable data to administrators, parents, and the community.

Requirements For The Major

36 credit hours in EDUC courses. The courses must include the following: EDUC 110, 120, 300 and 430 (Student Teaching Experience 12 credits).

Course Descriptions

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.

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.

EDUC 240: Technology in Education (3 credits)
Prerequisite: EDUC 110, three hours of a computer science course
Hands-on experience with computer and other technological applications in education; ways of integrating technology and the use of the Internet with classroom teaching procedures in the content areas will be explored.

EDUC 260: Teaching Exceptional Children (3 credits)
Prerequisite: EDUC 110, 120
Introduction to the teaching of exceptional children – either exceptionally intelligent or with difficulties; strategies for use in a regular classroom setting; methods of identifying disabilities and giftedness; ways of finding available resources to facilitate the learning process.
EDUC 300: Instructional Methods and Strategies (3 credits)
Types of instructional methods and assessment strategies and best uses of each; discussion of and practice in choosing and planning for the appropriate instructional methods; classroom arrangements and management for each instructional method.

EDUC 310: Curriculum Development (3 credits)
Prerequisite: EDUC 110
A perception of what curriculum is as a progressive activity in the students' and teachers' lives; an international vision of curriculum and its wider application in the global society.

EDUC 315: Learning Theories (3 credits)
Prerequisite: EDUC 110

EDUC 320: Introduction to Research Methods in Education (3 credits)
Prerequisite: EDUC 110, STAT 101
Concepts and methods in research as applied to education; quantitative and qualitative research; criteria and procedures for selecting a problem; research methodologies with application for real life.

EDUC 330: Educational Measurement and Evaluation (3 credits)
Prerequisite: EDUC 110, STAT 101
Concepts of measurement as they apply to testing and to the construction and evaluation of testing instruments; an understanding of how to participate competently in educational decisions related to measurement and testing.

EDUC 340: Early Childhood Education (3 credits)
Prerequisite: EDUC 110, 315
Areas of early childhood development including theories of development, discipline and guidance; instructional methodologies for preschool children.

EDUC 350: Classroom Management (3 credits)
Prerequisite: EDUC 110
An understanding of the dual roles of the teacher - instructor and manager. Strategies from various approaches in order to provide a rich repertoire of management choices; proactive, responsive and supportive classroom management strategies.

EDUC 360: Teaching Science at the Elementary Level (3 credits)
Prerequisite: EDUC 110, eight hours of laboratory based science courses
Curriculum concepts, methods and materials for teaching science; the discovery or constructivist approach of teaching science.

EDUC 365: Teaching Science at the Secondary Level (3 credits)
Prerequisite: EDUC 110, twelve credit hours of laboratory based science courses
Methods and techniques specific to teaching biology, chemistry and physics to the secondary grades; a hands-on approach.
EDUC 370: Teaching Language Arts at the Elementary Level (3 credits)
Prerequisite: EDUC 110, 373
Development of skills in reading, writing, speaking and listening from Class 1 through Class 8; standards for each area in each year; planning, classroom management and methods for incorporating language arts across the curriculum and the use of workshops for teaching language arts.

EDUC 373: Teaching Reading (3 credits)
Methods of teaching reading; classroom management for teaching individuals and small groups; methods of assessment for determining reading levels and progress of students; flexible grouping and scheduling for a variety of school situations and age groups.

EDUC 375: Teaching Language Arts at the Secondary Level (3 credits)
Prerequisite: EDUC 110, nine credit hours of English/Urd language
Methods and techniques with an integrated approach to reading, writing, listening and speaking.

EDUC 380: Teaching Mathematics at the Elementary Level (3 credits)
Prerequisite: EDUC 110, six hours of mathematics
Preparation in the teaching of mathematics and components of mathematics at the elementary level; organizing, content, methodology and preparation of support materials.

EDUC 385: Teaching Mathematics at the Secondary Level (3 credits)
Prerequisite: EDUC 110, nine hours of mathematics courses
Teaching algebra, geometry and trigonometry; useful training in the subject content, instructional methodology and preparation of support materials.

EDUC 390: Teaching Social Studies at the Elementary Level (3 credits)
Prerequisite: EDUC 110, three credit hours of history & geography, three credit hours of civics
Conceptual frameworks and insights into the effective teaching of history and geography.

EDUC 395: Teaching Social Studies at the Secondary Level (3 credits)
Prerequisite: EDUC 110, nine credit hours in history, civics, and/or geography
Conceptual frameworks and insights into the effective teaching of history and geography.

EDUC 410: Senior Seminar in Education (3 credits)
Prerequisite: EDUC 110, EDUC 430
Discussion-based course for education majors who have completed their student-teaching experience; current issues in education; questions and concerns arising from student teaching experiences.
EDUC 420: Senior Research Project (3 credits)
Prerequisite: EDUC 110, 320
Students will select a problem from the field of education and go through the process of educational research under the guidance of a mentor. Research findings will be applied to actual scenarios.

EDUC 430: Student Teaching Experience (12 credits)
Prerequisite: EDUC 110, 300, 350
An extended field-based course with real-life experience in the classroom; all aspects of the teaching-learning process will be looked at from a practical perspective.
Learning Objectives

• To develop critical practices in reading and writing of English with the ability to appreciate the content and style of a variety of representative texts;
• To demonstrate sufficient understanding of the basic principles of oral and written communication.
• To develop critical thinking with the ability to thoughtfully analyse problems in a given context and offer their solutions in a systematically arranged and composed format.
• To develop a keen sense of critical appreciation for, and insight into, various literary genres with ability to discriminate between contemporary literary theories and trends.

Requirements For The Major

36 credit hours including: ENGL 202, 203, 204, 301, 306, and 401. The remaining courses will be chosen from the given list depending on personal interest and career goals.

Course Descriptions

ENGL 001: Reading Comprehension (3 credits)
The course provides opportunities for reading comprehension through texts that are at a much higher level than the related exploitation receptive skills, productive activities and higher order thinking skills. Provides a variety of learning applications coupled with cloze practice and vocabulary activities.

ENGL 002: Basic Writing Skills (3 credits)
A carefully structured course that leads to mastery of a core of approximately 600 words that is essential to any written activity. The course serves as an effective vehicle for training listening skills, as a comprehension booster and as a starter program in creative writing.

ENGL 003: Introductory Phonics (3 credits)
The course introduces and reinforces phonic skills; sound-symbol relationships and auditory discrimination. It provides opportunities for syllable analysis, dictionary skills, work with consonant digraphs, blends and combinations and vowel diphthongs & combinations.

ENGL 004: Vocabulary Skills (3 credits)
The course teaches students how to learn new words. Students are encouraged to relate their current word knowledge to the context in which they discover an unfamiliar word; use context to find meaning of an unfamiliar word; and use the meanings of prefixes and suffixes to bring precise meaning to words.
ENGL 005: Speaking Skills (3 credits)
The course provides ample opportunities for students to engage in active and constructive “talkativities” in order to boost their speaking skills. Focus is on fluency, momentum and flow in any speaking or conversational context.

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 proof reading.

ENGL 102: Communication 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 words from the context, making inferences from what is heard, and basic note-taking; developing skills for participating successfully in social conversation and academic discussions; improving pronunciation.

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 sentences in extended texts. Common rhetorical forms will be practiced: narration, process description, classification, cause-effect, and comparison-contrast.

ENGL 200: Reading Skills (3 credits)
Developing reading comprehension and vocabulary skills; intensive reading of authentic materials done in class to reinforce the student’s understanding of more complex English grammatical structures and vocabulary. Emphasis on reading speed, previewing, skimming and scanning. Extensive reading outside of class.

ENGL 201: Introduction to English Literature (3 credits)
Basic and exciting questions about the nature and function of literature will be raised. Emphasis will be on how to interpret, discuss, evaluate and relish literary texts through a diverse and rich variety of selections from English and American literature.

ENGL 202: English Poetry: Elizabethan to the Pre-Victorian Age (1564 - 1830) (3 credits)
Selective survey of poetry from the Elizabethan age to the Pre-Victorian Age. Cross-currents of literary movements and their influence on poetic composition; to develop literary appreciation with the ability to relish poetic composition and distinguish between shaping influences.

ENGL 203: Elizabethan Drama (3 credits)
Focus on various periods of Shakespeare’s career as a dramatist. Two plays will be selected to create a critical awareness regarding the questions of genre, tradition, innovation and elements of universality in Shakespearean plays.
ENGL 204: English Prose: Elizabethan to the Pre-Victorian Age (1564 – 1830) (3 credits)
A selective survey of representative works of (non-fiction) prose in order to create a critical understanding of what distinguishes one form of writing from another as well as the impact of the times and movements that bring about change in a writer's form, thought and style.

ENGL 205: Phonology of English (3 credits)
Awareness of the sound system in English in order to acquire mastery of spoken English; speech sounds and how they differ; pattern formation; changes in sounds according to context; stress and intonation affecting meaning. Emphasis will be on facilitating learners as they use English in their workplace; includes an introduction to the system of phonetic transcription.

ENGL 206: English for Business Communication (3 credits)
Emphasis on equipping the student with necessary tools required in a professional setting.

ENGL 301: The 19th Century English Novel (3 credits)
A selective survey of representative authors of 18th and 19th Century novels.

ENGL 302: American Literature (3 credits)
A selective survey of American literature representing various genres from the 19th to the mid-20th Century. Shaping influences which make the “break-away” from the English tradition and establish American literature with its own recognizable features of originality and uniqueness. The most creative period after the Second World War will be represented by selected authors including novelists, dramatists, poets and short story writers.

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 will open up new dimensions in the understanding of related disciplines.

ENGL 304: Short Story in the European and American Contexts (3 credits)
Introduction to the art of short story writing and to major short story writers in English and American literature; increases familiarity with short story composition, technique, style and thought processes.

ENGL 306: English Poetry: Victorian to the Modern Age (1830 – 1970) (3 credits)
A continuation of ENGL 202 with representative authors of this period.

ENGL 401: Modern Drama (3 credits)
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.
ENGL 402: English Prose: Victorian to Modern Age (1830 – 1970) (3 credits)
A continuation of English 204 with a selective survey of non-fiction prose from the Victorian Age to modern times.

ENGL 403: Contemporary Literary Theory (3 credits)
Latest concepts and techniques for the critical appreciation of modern literary theories. Enhancing the understanding of contemporary literary debates in their critical and theoretical context.

ENGL 499: Thesis (3 credits)
Students will be required to write a thesis of approximately 7000 words on any topic of their choosing approved by the supervising tutors.
Learning Objectives

The Department of Geography has the distinction of being pioneers in the subject in this part of the sub-continent, with glorious traditions and an 80-year distinctive history. Geography is a systematic discipline that studies the interactions between people and their environments and explores the means to synthesize them for the benefit of society.

Department’s mission is to groom students as contributing persons for the humanity and as inspiring leaders in the nation building process besides focusing at the intellectual acumen to take on labyrinthine challenges of today and future. Its vision is to earn acknowledgement as the innovative and versatile community that can be looked upon to foster scholastic partnerships and seizing emerging horizons of knowledge. Thus, the Department embarks upon these objectives:

- Perception of human-environment interaction
- Problem solving for nation and community
- Critical thinking invoking exploration
- Research skills leading to creation
- Unswerving and persuasive communication

Courses Recommended for General Edu. Requirement:

Lower division course(s) from GEOG 101, 133, 210, 211, 220, 221, 222, 231, 232, 240.

Requirements For The Major

BA Major: A minimum of 36 credits to a maximum of 42 credits with 18 credits in upper division courses; including (core): GEOG 210, 220, 272, 273, 301, 374 and a directed project (GEOG 491) for six (6) credits; five (5) electives with three (3) in the upper division from Human Geography and one (1) from Geographical Techniques and Methods.

BS Major: A minimum of 48 credits to a maximum of 54 credits with 24 credits in upper division courses; including (core): GEOG 210, 220, 272, 273, 301, 374 and a directed project (GEOG 491) for six (6) credits; minimum seven (7) electives with five (5) in the upper division from Physical Geography and two (2) from Geographical Techniques and Methods.

Double Major: 21 credits with 12 credits in upper division courses including: GEOG 210, 220; directed project (GEOG 492) for three (3) credits; nine (9) credits in electives from upper division courses.

Minor: 15-18 credits with at least nine (9) credits in upper division courses including: GEOG 210, 220; three (3) electives with two (2) in upper division courses.

Free Electives: Any lower division course. Upper division course(s) may be opted with instructor permission.
Requirement for BA on Conventional Track: 18 credits with at least nine (9) credits in upper division courses including: GEOG 210, 220 and a directed project (GEOG 493) for six (6) credits, three (3) electives with two (2) in upper division courses.

Students are expected to maintain a cumulative GPA of 2.0 to earn a standing in geography with at least 18 credit hours of upper division courses from Forman Christian College in the BA Major; for a BS major the requirement is a GPA of 2.0 and 24 credit hours in upper division courses at FC College.

For a Double Major the GPA is 2.0 with a minimum of 21 credit hours with at least 12 credits in upper division work at FC College. No pass/fail courses grades shall be counted. For a Minor, a minimum of 2.0 cumulative GPA in the 15 credits must be earned with no pass/fail grades.

Course Descriptions

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

GEOG 301: Workshop on Geographical Thought and Concepts (2 credits)
Analyzes the current philosophical themes in geography, as well as the systematic doctrines and concepts overwhelming the mainstreams 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.

GEOG 451: Workshop on Special Theme of Contemporary Geography (1-2 credit(s))
Contemporary developments in the philosophical domains of the subject or its stream are analyzed. (Topic announced prior to registration.) Participation by consent of chair.

Physical Geography

GEOG 210: Earth's Physical Realms (3 credits)
The spatial and functional dynamics of major physical phenomena relating to the planet Earth - its evolution, interior state, atmosphere, lithosphere, hydrosphere and ecosphere. Explores physical phenomena and related cycles, and man-environment interactions.

GEOG-211: Introducing the Universe (3 credits)
The origin and evolution of the Universe - its quantum and relative domains, bodies in the Universe, stellar life cycles, black holes, forces of nature and associated dynamics; our present understanding of the state and structure of the universe and our solar system.

GEOG 240: Global Environmental Issues (3 credits)
Describes the earth's ecosystems; major issues relating to the human use and misuse of environmental resources, and possible courses of action for their conservation.
GEOG 312: Meteorology and Climatology (4 credits)
Prerequisite: GEOG 210
Elements and forces producing weather; the dynamics of heat flows, air movements, 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. Examines evolution of climatic systems, their spatial and temporal transformations and impact.

GEOG 313: Geodynamics and Geomorphology (4 credits)
Prerequisite: GEOG 210
Provides comprehension about geostructuring, isostatic balancing, geotectonics & modulations; processes, agencies and cycles of landscape sculpturing and evolution, including their temporal and spatial variations.

GEOG 314: Hydrosphere (4 credits)
Prerequisite: GEOG 210
Origin, structure and shape of the ocean basins; composition, thermodynamics, circulation and oscillations of marine waters; maritime resources and their use by humans; water resources on land - their origin, distribution, availability and quality; use and conservation as a resource for mankind.

GEOG 315: Geodynamics (4 credits)
Prerequisite: GEOG-210
Comprehension about the physical and chemical state of the Earth from its origin to recent times, like geostructuring, gravity, isostatic balancing, geothermics, geomagnetism, geotectonics, and modulations of the Earth's interior.

GEOG 316: Geomorphology (4 credits)
Prerequisite: GEOG-210
The principles, processes, agencies and cycles of landscape sculpturing and evolution, including their temporal spatial variations.

GEOG 345: Environment Impact Assessment (4 credits)
Prerequisite: GEOG 240 or instructor consent.
Analysis of the spatio-temporal bearing of the human actions on the natural habitat or the ecosystems and possible remedies for sustainability of the resources.

GEOG 351: Physical Geography Seminar (1-2 credit(s))
Participation requires instructor consent.
Departmental seminar investigating a selected field of Physical Geography. (Topic announced prior to registration.)

GEOG-411: Sustainable management of Environment (4 credits)
Prerequisite: GEOG 345 or instructor consent
Parameters and principles governing sustainability of the Earth's resources and ecosystems. International and regional efforts to achieve sustainability are focused.
GEOG 412: Synoptic Meteorology (4 credits)
Prerequisite: GEOG 312
Diagnostic techniques of weather; meteorological instruments; acquisition of meteorological data and its processing; preparation, analysis, and interpretation of meteorological maps and reports/forecasts.

GEOG 413: Fluvial Geomorphology (4 credits)
Prerequisite: GEOG 316
Advanced conceptualization of the fluvial processes and agencies and the related cycle of landscape evolution. Applications of fluvial morphology in impact analysis.

GEOG 414: Global Warming and Management Issues (4 credits)
Prerequisite: GEOG 312 or instructor consent
Factors and processes of global warming including disruption of the natural cycles and balance. Related problems and their management issues are discussed.

GEOG 415: Soils and Biodiversity (4 credits)
Prerequisite: GEOG 313 or instructor consent.
The development, characteristics, distribution and uses of soils; degradation and conservation issues; the effects of soils on spatial and temporal distribution of life forms.

GEOG 416: Natural Hazards and Management Issues (4 credits)
Prerequisite: Any from GEOG 312, 313, 314
Analyzes the natural phenomena causing hazards, related issues and problems; means and techniques of ascertaining their distribution, impact on human life and possibilities of recurrences; options for disaster preparation and loss mitigation.

Human Geography

GEOG 220: Human Domains of Geography (3 credits)
Concepts relating to the spatial and systematic organization of economic, cultural, political, demographic and occupancy milieu, arising out of human use of the earth's environment. Importance of human attitudes and values in resource use and shaping of the patterns.

GEOG 221: Geography of Tourism (3 credits)
Physical and cultural factors affecting the location & relative importance of recreational areas and tourist attractions. Spatial analysis of tourist flows, modes of transportation, effects on regional economies, and impacts on environments.

GEOG 222: Globalization - An Introduction (3 credits)
Evolution and dynamics of globalization and its impact on spatiotemporal patterns of human culture.
GEOG 322: Economic Geography (3 credits)
Prerequisite: GEOG 220
Principles governing multivariate interactions underlying the evolution and distribution of various economic activities and functions; the role of temporal and spatial variables responsible for changes in the economic systems and regions.

GEOG 323: Population Geography (3 credits)
Prerequisite: GEOG 220
Spatial, temporal and structural aspects of population characteristics including growth, distribution, density, composition and migration; the relationship of demographic variables to cultural, economic and environmental factors.

GEOG 324: Settlement Patterns and Processes (3 credits)
Prerequisite: GEOG 220
Human settlement patterns: location, evolution, size, spacing, shapes and functional systems produced by interactive multivariate processes, forms and structures. Problems relating to growth, congestion and evolution of ghettos.

GEOG 325: Political Geography (3 credits)
Prerequisite: GEOG 220 or instructor consent
Comparative study of global political regions and related systems. Varied approaches are explored such as power analysis, genetic analysis, functional analysis, thematic analysis and ethnic analysis of political units.

GEOG-326: Urban Environmental Issues (3 credits)
Prerequisite: GEOG-240 or instructor consent
Dynamics of urban environment degradation and analysis of ratification mechanisms and policies. Current environmental issues of urban centers in Pakistan are focused.

GEOG 352: Human Geography Seminar (1-2 credits)
Participation by instructor consent
Departmental seminar investigating a selected field of Human Geography. (Topic announced prior to registration.)

GEOG 421: Cultural Geography (3 credits)
Prerequisite: 220 or instructor consent
Patterns and processes of the world cultural realms such as language, religion, social traits and ethnicity serving as foci for an in depth understanding of the world and its people and cross-cultural interactions.

GEOG 422: Spatial Planning for Economic Development (3 credits)
Prerequisite: GEOG 322 or instructor consent.
Theories of location and systematic modeling in describing nodes and hierarchy of economic clusters in terms of multivariate functional analysis and synthesis examined at evolving developmental modes.

Department of Geography
GEOG-423: Urban Spatial Planning (3 credit)
Prerequisite: GEOG-324 or instructor consent
Dynamics of urban hierarchy, functional correlations and evolution of urban spaces. Principles of developmental planning for urban centers.

GEOG-424: Population Migration and Implications (3 credits)
Prerequisite: GEOG-323 or instructor consent
Spatial and temporal dynamics of population transfers and its implications on socio-economic profile of a region.

GEOG 425: Cultural Parameters and Political Integration (3 credits)
Prerequisite: GEOG 325 or instructor consent.
The exigencies of cultural parameters such as ethnicity, religion, socio-economic and political disparities which cause temporal and spatial oscillations and pulsations in a political system. Impact on the political integration processes and the prospects for viable globalization or regionalization.

Regional Geography

GEOG 133: Geographical Profile of Pakistan (3 credits)
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.

GEOG-231: Cultural Heritage of South Asia
Spatial cultural features and patterns of one of the world’s richest cultural realms; including comparison with contemporary cultural patterns.

GEOG 232: World Regional Geography (3 credits)
Emphasis is placed on the location, spatial distribution and interaction of human activities and resource patterns in a global context.

Geographical Techniques and Methods

GEOG 272: Cartographic Interpretation and Design (2 credits)
Maps and types: their use, contemplation techniques; interpretation and analysis; fundamental map making techniques.

GEOG 273: Field Surveying and Investigation (2 credits)
Trains students in basic surveying techniques and use of instruments; as well as in collection and interpretation of field data.
GEOG-371: Digital Cartography
Knowledge of computer software applications is preferred.
Skill development in computerized map making and interpretation / analysis.

GEOG 374: Aerial and Satellite Imaging (3 credits)
Prerequisite: Knowledge of computer software applications, GEOG 272 or instructor permission.
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].

GEOG 471: Qualitative and Quantitative Techniques in Geography (4 credits)
Prerequisite: Basic knowledge of computer software applications or instructor consent.
Qualitative methodologies and quantitative techniques used by geographers in analysis and synthesis of systematic spatial phenomena. Application of statistical methods and thematic models for geographical analysis including the use of computer software and hands on experience.

GEOG 474: Geographical Information Science (4 credits)
Prerequisite: GEOG 374.
Principles of Geographical Information Science, functions of geographic information systems, and relationship between GIS and remote sensing.

GEOG 491: Directed Project (6 credits)
Prerequisite: Knowledge of computer software applications or instructor consent.
Summer Workshop on techniques of project planning, designing, operational management, report preparation and presentation after Junior Year followed by independent / participated research in field, laboratory, or library under the direction of a member of geography faculty (appointed by the chair) and preparation and presentation of research report.

GEOG 492: Directed Project (for double majors) (3 credits)
Prerequisite: Knowledge of computer software applications or instructor consent.
Independent / participated research in field, laboratory, or library on a problem of geographical interest under the direction of a member of geography faculty (appointed by the chair) and preparation and presentation of research report.

GEOG-493: Directed Project (for conventional track) (6 credits)
Prerequisite: Knowledge of computer software applications or instructor consent.
Independent / participated research in field, laboratory, or library on a problem of geographical interest under the direction of a member of geography faculty (appointed by the chair) and preparation and presentation of research report.
Learning Objectives

• To develop analytical, critical, argumentative approach for assessing the past occurrences in order to draw conclusions.
• To undertake research-oriented academic ventures exercising scientific methods and techniques.
• To broaden students’ mental horizon, enrich their vision and expand their outlook.
• To highlight the modern trends in history and rapidly changing socio-political scenario on global level.
• To integrate knowledge of current affairs with past historical events, judging their impact on human life.
• To highlight the cultural legacy, intellectual attainments, historical heritage and achievements in the realm of letters and research.
• To develop the habit of philosophical reflection upon the basic issues confronting mankind throughout history as they relate to the future.
• To enhance the student’s knowledge of ancient civilizations and cultures.
• To make clear the need for becoming more open to new questions, ideas, developments and continual exploration of the unknown.
• To learn how to think, plan and work independently, critically, analytically and rationally.
• To encourage the love of reading critically in order to determine the changing trends in history, culture and society.

Requirements For The Major

HIST 201, 301, 401, 303, 405 and six credits of a Research Project.

Course Descriptions

HIST 101: Freedom and the Nationalist Movement in the Sub-Continent (1857-1947) (3 credits)
The freedom movement started in the sub-continent, 1857 to 1947, covering all the major events along with a brief survey of nationalist movements.

HIST 201: Historical Institutions and Ideas (3 credits)
A specialized study of institutions, covering topics such as Khilafat, Monarchy, Fascism, Socialism, Communism, Nationalism, Imperialism, Capitalism and Democracy.

HIST 250: History of Salateen-e-Delhi (3 credits)
The course will study the Salateen-e-Delhi period and will focus on the origin, main features and causes of its decline. This course will enable the student to analyze the development of art, culture & architecture of the age along with critical evaluation of state & society under the rule of the Sultans.
HIST 255: The Indus Valley Civilization (3 credits)
The course will study the Indus Valley Civilization focusing the origin, its main features and causes of its decline. We will explore 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. Students will be familiarized with archeological methods and the course will include a field trip to Harappa.

HIST 301: Philosophy of History (3 credits)
The origin, value and schools of thought in Historiography. Basic concepts of philosophy of history focusing on modern development. The nature and scope of history, values, theories, and research methodologies. Ancient, Indo-Pak and Muslim historiography.

HIST 302: Survey of Modern Europe (3 credits)
The geography, culture, social and political history of Europe, highlighting personalities and events and analyzing the politics. A study of the French Revolution, the Eastern Question, the unification of Italy and Germany. A study of the forces of nationalism, imperialism and totalitarianism as well as Europe’s interaction with non-western cultures. Foreign policy of the big powers.

HIST 303: Modern International Relations since 1914 (3 credits)
International relations between the global powers and the rest of the world, highlighting events, personalities and wars in different continents of the world. Special emphasis will be laid on the period between the two world wars. A study of the role and the foreign policies of the super powers – Britain and the United States.

HIST 304: History of the United States (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.

HIST 305: Ancient History of the Sub-Continent (3 credits)
The origin and main features, 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.

HIST 306: Islamic History during the Umayyads and Abbasids Period (3 credits)
The central and provincial administration of the Umayyads and Abbasids. Their religious policy towards the non-Muslims; fiscal policies; the development of art and culture; the causes of their downfall.

HIST 307: Contemporary Global Issues (3 credits)
Contemporary multi-disciplinary perspective regarding major issues such as globalization, terrorism, the environment, international politics, and the World Trade Organization.

Department of History and Pakistan Studies
HIST 308: History of Lahore (3 credits)
The history of Lahore in Indian history; its role during the different regimes. It will examine Lahore's importance in art, architecture, and culture.

HIST 401: Research Methodology (3 credits)
Research dimensions, theory and types; quantitative and qualitative research examining social science, scientific and historical research methods.

HIST 402: State and Society under the Mughal Rule (3 credits)
The state and society under the Mughal rule; their central and provincial administration, the military, economic development, art and culture.

HIST 403: British Rule in India (1757-1947) (3 credits)
Expansion of the British empire in India. Policies, administration, reforms, Constitutional Development Acts and important events that shaped the course of history in India.

HIST 405: Modern Muslim World (3 credits)
Modern history, from 19th Century onwards, of Turkey, Egypt, Saudi Arabia, Iran, Indonesia, Pakistan, Syria and Iraq.

HIST 406: World Civilization (3 credits)
The course traces development of various civilizations. Students will review the artistic, philosophical, religious and political characteristics of cultures of Egypt and Greece, Indus Civilization and Chinese Civilization.

HIST 407: Renaissance and Reformation (3 credits)
European cultural and religious horizon from 1300 to 1648. The revival of art, science, literature, the Protestant Revolution, the Catholic Reformation and the Age of Enlightenment.

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, Pakistan and the Islamic World.

HIST 309: Islamic History (3 credits)
Arabia before Islam; the socio-political and economic condition of the Arabs, the rise of Islam, the Holy Prophet's (P.B.U.H.) life and administration in Makkah and Madinah, the Sirat, the orthodox Caliphate.

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.
Learning Objectives

• Provide concepts and new trends in Mass Communication.
• Awareness of contributions of Muslim and Western scholars regarding theories and principles.
• Provide professional skills of public relations, advertising and other communication organizations.
• Develop a critical approach to the contents of the electronic media.
• Present the history and basic concepts of journalism.
• Awareness of press laws, ethics, and freedom of the press.
• An understanding of the relationship between the communication organizations and their community.
• Provide an understanding of advanced study of communication theories and methodologies as well as principles and strategies of communication that will enable students to become efficient communicators, media managers, administrators and researchers.

Requirements Of The Major

36 credit hours including: MCOM 101, 102, 201, 202, 301, 302, 407; five courses will be selected from the following, on personal interest and career requirements: MCOM 303, 304, 305, 401, 402, 404, 405.

Course Descriptions

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.

MCOM 101: Introduction to Print Journalism (3 credits)
Brief history of printing and publishing; introduction to newspaper organization, reporting, sub-editing, newspaper content; news, definition, structure, values and sources.

MCOM 102: Introduction to Electronic Media (3 credits)
Origin and development of radio and television in Pakistan; television and radio as effective communication sources; introduction to private radio and television channels; role and effects of electronic media on society.

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.
M COM 202: Sub-Editing (3 credits)
Prerequisite: M COM 101, 102
Introduction, importance and process of sub-editing; functions and qualifications of a sub-editor; sources of news; techniques, types and new trends in headlines; technique, types, and new trends in make up; monitoring importance and techniques of radio and television; importance and techniques of picture editing and caption writing for pictorial display; journalistic terminologies.

M COM 301: Press Laws and Ethics (3 credits)
Evolution of press laws with special reference to the Sub-continent and Pakistan; a critical analysis of salient features of the current press and publication regulations; Pemra laws pertaining to the electronic media in Pakistan; freedom of expression; defamation laws; contempt of court; press ordinances; contemporary trends in copyright law and the concept of intellectual property rights; code of ethics for journalists from Western and Islamic perspectives.

M COM 302: Opinion Writing (3 credits)
Prerequisite: M COM 101, 102
Contents 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.

M COM 303: Public Relations (3 credits)
Prerequisite: M COM 101
Definition and purpose; tools of public relations in Pakistan; duties of a PR organization; definition and basic ingredients of a press release, press note, handout, press communiqué and press conferences; structure and functions of DGPR.

M COM 304: Principles of Advertising (3 credits)
Prerequisite: M COM 101, 102
Definition, scope, function, essentials and economic aspects of advertising. Advertising in Pakistan; advertising as a tool of marketing; advertising research; introduction to prominent advertising agencies of the world; advertising campaigns and their evaluation.

M COM 305: Magazine Journalism (3 credits)
Prerequisite: M COM 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.

M COM 401: Radio Broadcasting: A Theoretical Introduction (3 credits)
Prerequisite: M COM 102
Origin and development of radio in the Subcontinent; workings of a radio station; role in national development; distinctive features of radio news; interviewing for radio; duties of a radio producer; program planning, outdoor broadcasting, trends in FM radio in public and private sector in Pakistan.
M COM 402: Television: A Theoretical Introduction (3 credits)  
Prerequisite: M COM 102  
Set-up and working of news; duties of a news producer; sources of TV news; TV news film; basics of news film shooting and editing; drafting of TV news; compilation of bulletins; preparation of network bulletins; students will submit 5 news reports and five interviews of ten minutes duration each on video cassettes.

M COM 403: Media History (3 credits)  
Brief introduction to the beginnings of the press; a brief view of the growth of the Muslim press in the Subcontinent; the role of the press in the War of Independence in 1857; journalistic achievements of Sir Syed Ahmad Khan, Maulana Mohammed Ali Johar and Maulana Zafar Ali Khan; the role of the press in the Pakistan Movement.

M COM 404: Community Journalism: Women, Children, Minorities, Human Rights (3 credits)  
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.

M COM 405: Mass Communication Studies (3 credits)  
Prerequisite: M COM 101, 102  
Definition and different types of communication; message, channel, encoding, decoding, receiver in communication; noise and feedback; two-step flow of communication; barriers in communication; essentials of effective communication; gate-keeping and information control; the role of the opinion leader.

M COM 406: News Writing (3 credits)  
Principles and basic techniques of reporting and writing for the mass media; mechanics of news writing, gathering, interviewing and special beat reporting.

M COM 407: Internship/Research Project (3 credits)  
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. Students are required to submit one research project on any assigned topic at the end of the 8th semester.
Department of Mathematics
Learning Objectives

• To acquire skills in numerical and symbolic manipulation, with application to everyday life and to the professions.
• To apply logical and quantitative thinking to problem-solving in various settings.
• To appreciate mathematics as a creative human endeavor.
• To have the knowledge and skills to succeed in academic and professional endeavors with the highest standards of personal integrity, social responsibility, tolerance and respect for humanity.

Requirements For The Major

48 credit hours including: MATH 201, 202, 203, 204, 205, 206, 207, 208, 301, 302; 8 credit hours of electives selected from: MATH 303, 304, 305, 306, 401, 402, 403.

Course Descriptions

MATH 101: Pre-Calculus and Trigonometry (3 credits)
Polynomial, rational, exponential, inverse, logarithmic and circular functions; sets, set operations and relations; solutions of systems of equation; practical geometry; trigonometry with the emphasis on the definitions and properties of the trigonometric function of a real variable, their use in the solution of right and oblique triangles; matrices and determinants and their use in solving simultaneous linear equations.

MATH 102: Calculus I (3 credits)
Prerequisite: MATH 101, A-level Mathematics or Intermediate Mathematics.
Introduction to analytic geometry; ordered pairs, graphs of equalities and inequalities, rectangular and polar coordinate systems, functions, limits and continuity, differentiation and application of elementary function; integration and its applications.

MATH 103: Introductory Linear Algebra (3 credits)
Linear equations and matrices, determinants, real vector spaces, subspaces, linear independence, basis and dimension, homogeneous system, rank of a matrix and applications.

MATH 104: Basic Applied Mathematics (3 credits)
Prerequisite: MATH 101, A-level Mathematics or Intermediate Mathematics.
Application of basic mathematics and calculus to real-life problems.

MATH 201: Calculus II (3 credits)
Prerequisite: MATH 102.
Differentiation and integration of trigonometric, exponential, logarithmic and transcendental functions; integration techniques; indeterminate forms; improper integrals; area and arc length in polar coordinates; infinite series; power series; Taylor's theorem.
MATH 202: Differential Equations (3 credits)
Prerequisite: MATH 201
First-order equations, existence-uniqueness theorem, linear equations, separation of variables, higher-order linear equations, systems of linear equations, series and numerical solutions.

MATH 203: Vector and Tensor Analysis (3 credits)
Prerequisite: MATH 103.
Introduction to vectors, tensors and matrices, other dimensions, other ranks, areas, volumes and determinants; operator and its applications; vector integration, Green theorem and related theorems; main equations of hydrodynamics, heat transfer and diffusion; matrix inversion and its methods; change of coordinates; diagonalization; introduction to elasticity theory; curvilinear orthogonal coordinates.

MATH 204: Mathematical Methods (3 credits)
Prerequisite: MATH 201
Laplace Transform; Fourier Transform; fundamental properties of complex numbers, analytic functions, differentiation and integration theorems.

Math 205: Abstract Algebra (3 credits)
Prerequisite: MATH 103
An introduction to the basic concepts in modern algebra. Topics included are groups and vector spaces.

MATH 206: Numerical Analysis (3 credits)
Prerequisite: Math 102 or 103
An introductory course in computer representation of numbers; error analysis; roots of equations, nonlinear and linear simultaneous equations, matrices, determinants; numerical integration; solutions of ordinary differential equations; interpolation and curve-fitting. Implementation using suitable Computer Language (Fortran or C).

MATH 207: Real Analysis (3 credits)
Prerequisite: MATH 201
Development of the real number system sequences and series.

MATH 208: Topology and Metric Spaces (3 credits)
Prerequisite: MATH 103
Point set topology; connectedness, compactness, continuous functions and metric spaces.

MATH 301: Multivariable Calculus (3 credits)
Prerequisite: MATH 201
Vectors and analytic geometry in three-space; partial and directional derivatives; extrema; double and triple integrals and applications; cylindrical and spherical coordinates.
MATH 302: Mechanics I (3 credits)
Prerequisite: MATH 203
Composition and resolution of forces, friction, center of mass and center of gravity, kinematics and dynamics of a particle; planetary motion and Kepler's laws, collisions of particles.

MATH 303: Discrete Mathematical Structures (3 credits)
Prerequisite: MATH 201
Introductory mathematical logic, mathematical induction, relations and functions, combinatorics, counting techniques, graphs and trees and finite automata theory.

MATH 304: Operations Research (3 credits)
Prerequisite: MATH 201
Overview of Operations Research; review of LP modeling and basic concepts, computer solutions to LP problems, analysis of selected LP models; transportation models, assignment models, project scheduling by PERT and CPM; integer linear programming, deterministic and probabilistic inventory models, decision analysis and games, simulation modeling, Markovian Decision Process.

MATH 305: Mechanics II (3 credits)
Prerequisite: MATH 302
Lagrangian and Hamiltonian dynamics and applications including rigid body motion, nonlinear oscillations and a taste of chaos, coupled oscillations, continuum mechanics, special relativity and perturbation theory.

MATH 306: Quantum Mechanics (3 credits)
Prerequisite: MATH 305
Inadequacy of classical mechanics; Black Body radiation, photoelectric effect, Compton effect, Bohar's theory of atomic structure, wave particle duality, De-Broglies postulate; the Uncertainty Principle, Uncertainty of position and momentum, statement and proof of the Uncertainty Principle, energy-time uncertainty; Eigen values and Eigen function; operators and Eigen functions, linear operators, operators formulatism in quantum mechanics, orthonormal systems, Hermitian operators and their properties, simultaneous Eigen functions, parity operators, postulate of quantum mechanics, Schrodinger Wave Equation; motion in one-dimension, step potential, potential barrier, potential well, harmonic oscillator, and motion in three dimensions.

MATH 401: Modern Algebra (4 credits)
Prerequisite: MATH 205
Groups and their generalizations; homomorphism and isomorphism theories; direct sums and products; ordering; abelian groups and their invariants.
MATHEMATICS 402: Rings and Modules (4 credits)
Prerequisite: MATH 205
Definitions of a ring, subring and other types; ideals; Zorn's Lemma; relationship between maximal/minimal conditions and nilpotency in rings; the Wedderburn radical of a ring; simple rings; semi-prime and semi-simple rings; right/left annihilator of a subset of a ring; prime ideals and m-systems; semi-prime ideals; prime radical of a ring; prime rings; modules and sub-modules; sums and direct sums of submodules; simple, Torsion and finitely generated modules.

MATHEMATICS 403: Graph Theory and Algorithms for its Applications (4 credits)
Prerequisite: MATH 303
Graphs, sub-graphs, isomorphism, trees, connectivity, Euler and Hamiltonian properties, matching, vertex and edge colorings, planarity, network flows and strongly regular graphs. Explicit algorithms and their computations complexity.

MATHEMATICS 404 Differential Equations with Applications (4 credits)
Prerequisite: MATH 202
Ordinary differential equations arising from partial differential equations by means of separation of variables; method of characteristics for first-order PDEs; boundary value problems for ODEs; comparative study of heat equation, wave equation and Laplace's equation by separation of variables and numerical methods; further topics in numerical solution of ODEs.
Learning Objectives

- To master the concepts, principles and knowledge of physics
- To explain the application of the scientific method in physics research
- To interpret graphs, diagrams and charts from scientific literature.
- To execute laboratory procedures within an acceptable range of error.
- To write about scientific concepts and results, prepare a well-organized oral scientific presentation and be able to defend the conclusions.
- To effectively employ electronic databases to conduct scientific research.

Requirements For The Major

48 credits including PHYS 103, 104, 221, 222, 301, 321, 322, 461, 499; one or more of the following PHYS courses as electives: 334, 341, 342, 351, 422, 451, 462, 472, 481, 482, 483

Course Descriptions

PHYS 100: Introduction to physics (4 credits)
Introduction to Physics lays emphasis on basic concept that can be treated with elementary mathematics. These include applications of Physics in everyday life to which the student can relate. Concepts to be taken up are: 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.

PHYS 101: General Physics I (4 credits)
Prerequisite: Calculus I
Mechanics, wave motions and optics with emphasis on the fundamental principles of physics, Laboratory.

PHYS 102: General Physics II (4 credits)
Electricity, magnetism, DC and AC current, and modern physics, Laboratory.

PHYS 103: Mechanics (3 credits)
Prerequisite: PHYS 101 and Calculus I.
Study of physical phenomena in mathematical terms. Statics and dynamics of particles and rigid bodies; oscillatory and rotary motion; gravitation and fluid mechanics.

PHYS 104: Wave and Vibrations (3 credits)
Prerequisite: PHYS 101 and Calculus I.
Study of wave phenomena in mathematical terms. Types of waves; mathematical representations; energy of waves; interference; diffraction and polarization.
PHYS 221: Electricity and Magnetism  (4 credits)
Prerequisite: PHYS 103
Electrostatics, magnetostatics, electric current, laws of magnetism, Maxwell's Equations, electromagnetic energy and electromagnetic wave equations, Laboratory.

PHYS 222: Modern Physics  (4 credits)
Prerequisite: PHYS 221
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.

PHYS 301: Classical Mechanics  (4 credits)
Prerequisite: PHYS 103
Study of the motion of particles and system of particles. Direct application of Newtonian mechanics; Langrangian formulation; Hamiltonian formulation. Motion under an inverse force field; two body problems; planetary orbital motion; Legendre transformation; canonical transformations and their properties; Poisson's brackets, theorems and invariances; Laboratory.

PHYS 321: Electrodynamics  (4 credits)
Prerequisite: PHYS 221
Emphasis on the unity of electric and magnetic phenomena. Introduction of electrostatics and magnetostatics; solution of boundary-value problems; time-varying fields; gauge transformations; Maxwell's Equations and wave equations; electromagnetic wave propagation in lossless, lossy and metallic media; wave propagation through coaxial transmission lines; rectangular wave guides and radiation from oscillating dipoles; Laboratory.

PHYS 322: Statistical Physics  (3 credits)
Prerequisite: PHYS 222
Introduction to the basic principles and concepts of statistical physics. A study of the behaviour of large assemblies of particles. Phase space, physical systems, ensembles, classical and quantum mechanics, distribution functions, partition functions, thermodynamics functions and the principle of equipartition energy.

PHYS 331: Electronics I  (3 credits)
Prerequisite: PHYS 221
Study of the elementary physics of semiconductors, two-terminal devices, LEDs, lasers, Schottky diodes, three terminal devices and selected topics on metal contacts and device fabrication.
PHYS 332: Electronics II (4 credits)
Prerequisite: PHYS 331
Models for active devices, single-ended and differential amplifiers, current sources 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.

PHYS 334: Thermal Physics (3 credits)
A statistical approach to thermodynamics, thermal and chemical equilibrium, classical and expanding gas heat engines, plan transition and irreversible processes.

PHYS 341: Methods of Mathematical Physics (3 credits)
Prerequisite: PHYS 103; MATH 102
Vector analysis and special function curvilinear coordinates; Legendre polynomials; Bessel functions; Neumann functions; Cauchy-Riemann equations; Fourier Series and Fourier Transformations; tensor analysis.

PHYS 342: Computational Physics (3 credits)
Introduction to numerical technology for solving physics problems and programming. Chaotic motion, nonlinear mechanics, particle trajectories, Monte Carlo simulation of phase transitions.

PHYS 351: Environmental Physics (3 credits)
Introduction to environmental physics. Radiation, radiation balance, heat and mass transfer, the micrometeorology of crops.

PHYS 422: Nuclear Physics (3 credits)
Prerequisite: PHYS 222
Nuclear forces; nuclear phenomenology, reactions and stability of nuclear models; radiation and decay; structure of the nucleus; particle phenomenology.

PHYS 451: Sources of Energy (3 credits)
Study of the different sources of energy, including thermal, hydroelectric, solar, nuclear and thermo-nuclear.

PHYS 452: Atmospheric Physics (3 credits)
General description of the atmosphere, atmospheric thermodynamics, solar and terrestrial radiation, atmospheric aerosol and cloud microphysical processes, atmospheric electricity and dynamics.

PHYS 461: Quantum Mechanics I (3 credits)
Prerequisite: PHYS 301
Historical origination of the quantum theory, foundation of wave mechanics, Schrodinger wave equation and its solution for free particles, the hydrogen atom and the harmonic oscillator.
PHYS 462: Quantum Mechanics II (3 credits)
Prerequisite: PHYS 461
Matrix mechanics, vector spaces and linear operators, perturbation theory, application of principles of quantum mechanics to solid state and nuclear systems.

PHYS 472: Lasers (3 credits)
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 geometrical optics, stable and unstable laser resonators, modes in a laser cavity, Loop Gain Q-Switching, and energy level of molecules.

PHYS 481: Solid State Physics I (3 credits)
Prerequisite: PHYS 221
Study of solids, crystal structure, direct and reciprocal lattices, types of bonding, lattice vibrations, the thermal, electrical and magnetic properties of solids and the effects of crystals.

PHYS 482: Solid State Physics II (3 credits)
Prerequisite: PHYS 481
Free electrons, Fermi gas, nearly free electrons, energy bands, optical transitions, superconductors and magnetic properties.

PHYS 483: Materials Science (3 credits)
Prerequisite: PHYS 481
Study of the properties of materials; the internal structure of materials; the performance of materials during manufacture, production and processing; the performance of materials during service, crystal structures, crystal geometry, solidification, crystalline imperfections, diffusion in solids, thermodynamics and phase diagrams, and electrical materials.

PHYS 499: Senior Thesis Project (6 credits)
Each student works on an independent project under the supervision of a faculty member, with the expectations that the student will prepare a senior thesis and will present a seminar on their work.
Learning Objectives

- To develop freedom and the ability of expression based on wide knowledge.
- To allow each student to plan his/her course work according to his/her individual needs.
- To learn to think critically and analytically and to develop the habit of lifelong learning.
- To prepare students for careers in foreign and domestic service; politics, law school; teaching, research and graduate study in political science.
- To promote an active interest in public affairs for the general citizen.

Requirements For The Major

36 hours in Political Science including: PLSC 101, 102, 103 300, 301, 302, 320 and one course in Comparative Politics; 12 credits selected from the following departments: Economics, Human Geography, History, Islamic Studies, Literature, Psychology, Sociology, Philosophy.

Course Descriptions

PLSC 101: Introduction to Political Science (3 credits)
A survey of the areas 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.

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.

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.

PLSC 200: Research and Methodology (3 credits)
A basic study of the techniques and tools for significant research in the field of political science.

PLSC 201: Governments of Western Europe and the United States (3 credits)
A comparative study of the parliamentary, presidential, unitary and federal systems of major western nations.
PLSC 202: Governments of Developing Countries (3 credits)
Emphasis on unique characteristics of governments in Asia and Africa. A detailed analysis of the historical development and a comparison between those nations and the rest of the world.

PLSC 300: Seminar and Major Political Science Research Paper (3 credits)
Prerequisite: PLSC 200
Major paper (20 pages minimum) written under the direction of a Political Science Professor.

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

PLSC 302: Modern Political Theory (3 credits)
A study of modern ideologies since the French Revolution, including liberalism, conservatism, capitalism, Nationalism, Fascism, and anarchism.

PLSC 303: Contemporary Political Theory (3 credits)
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.

PLSC 305: Islamic Political Thought (3 credits)
Covering the development of Islamic political thought from ancient times to the present. The Muslim thinkers Al-Farabi, Al-M awardi, Al-G hazzali, Ibn Khaldun, Shah Waliullah, and Allama M uhammed Iqbal will be examined.

PLSC 310: Politics of the Middle East (3 credits)
Political development and advance of modernization of the area. Special attention given to the role of Islam, Arab-Israeli connection, politics of Persian Gulf, politics of OPEC, political parties, military and politics of change.

PLSC 311: Politics of Developing Areas (3 credits)
Examination of the development of political awareness and economic growth, assessing explanations for the failure of development of some countries and the strategies used to escape the poverty of under-development. It will examine the inter-relationships between “first” and “third” worlds, critique the major developmental theories; understand the underpinnings of development strategies, examine the complex nature of some of the major challenges facing the developing countries.

PLSC 315: World Political Geography (3 credits)
Focus will be on how tensions as forces of cultural, economic and political globalization interact with the reality of geographic diversity. The course will seek to balance physical and cultural aspects of geography, first establishing a framework of our physical world and next using a regional analysis to overlay twenty-first century political realities.
PLSC 317: Political Dynamics: Parties and Processes (3 credits)
This is an in-depth analysis of the two party and multi-party systems including a discussion of what parties are and what parties are not. A study will be made of the history of political parties, parties and elections, parties in a federal system and parties around the world.

PLSC 320: International Relations (3 credits)
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.

PLSC 321: Pakistan Foreign Policy (3 credits)
This course will provide a survey and critical evaluation of the status and relationships between Pakistan and the rest of the world with special emphasis between Pakistan and the Islamic World and with the United States.

PLSC 322: International law (3 credits)
This course begins with a study of the historical evolution of international law and continues with coverage of classifications of states, rights and duties of states, rights and duties of jurisdiction, theories of nationalism, diplomatic relations, operation and enforcement of treaties, redress of differences by war and other methods and neutrality.

PLSC 323: International Organization (3 credits)
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.

PLSC 330: Constitutional Law in Pakistan (3 credits)
A study of the history and formation and implementation of each of the constitutions of Pakistan and the interpretation of test cases before the Supreme Court of Pakistan.

PLSC 331: Constitutional Law I – United States (3 credits)
Development of American federalism and national power, commerce clause and nationalism of the economy and its applicability to Pakistan.

PLSC 332: Constitutional Law II – United States (3 credits)
Development of civil rights and civil liberties in the American federal system and possible relationship to conditions in Pakistan.

PLSC 335: Public Opinion (3 credits)
A study of the general nature of public opinion; development and application to Pakistan. Particular attention will be paid to modern techniques of measurement.
PLSC 336: Public Administration (3 credits)
Includes the art of administration, organizational aspects, management agencies, unity under the chief executive, departmental organization, federal-provincial and headquarters-field relationships, line functions, fiscal management, budget strategy and tactics and government career service.

PLSC 400: Current Political Problems (3 credits)
Topical issues and themes of justice, equality and liberty, women’s rights, race relations, child labor, birth control and other topics as chosen by the professor and members of the class.

PLSC 401: International Political Economy (3 credits)
The primary goal of this course is to introduce students to a broad range of topics in contemporary political economy, i.e. in the study of phenomena that are both political and economic in nature. Although the works we will discuss cover a variety of substantive issues, they share a unifying methodological and conceptual framework, commonly known as rational choice theory.

PLSC 410: Political Science Internship (3 credits)
Working with the national, provincial or municipal government offices. Assignments with selected government and civic organizations.

PLSC 415: Thesis (6 credits)
Prerequisite: PLSC 200
A detailed research project approved by the department head and directed by a faculty member in the Political Science Department. Open to seniors majoring in political science who have maintained a grade point average of 3.5 or above.
Learning Objectives

- Demonstrate familiarity with the methods of inquiry used by psychologists
- Acquire knowledge of major psychological concepts and research outcomes.
- Develop ability to read and think critically about concepts, theories and research.
- Demonstrate oral skills and the writing skills to communicate clearly about psychological material.
- Demonstrate ability to analyze situations using psychological concepts.
- Develop increased respect for human unity and diversity.
- Acquire comprehension of the range of career possibilities with training in psychology.
- Develop the ability to use library resources and technology to gather information and solve problems in the field.
- Demonstrate ability to apply the ethical principals of psychologists both personally and through socially responsible behaviors.

Requirements For The Major

Thirty-six (36) credit hours including the following courses: PSYC 100, PSYC 305, PSYC 310, PSYC 325 and PSYC 340

Course Descriptions

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

PSYC 150: Developmental Psychology I (3 credits)
Prerequisite: PSYC 100
Study of human development from conception to adolescence focusing on physical, intellectual and personality development; special emphasis on development in adolescence and the quest for identity. Research activities integrated into the course work.

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 problems of old age, death and bereavement.

Department of Psychology
PSYC 230 Cognitive Psychology (3 credits)
Prerequisite: PSYC 100
Information processing, attention, memory, language comprehension, concept formation, reasoning, problem-solving and decision-making. Developing thinking skills by applying principals of CORT-thinking.

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 analyses will be integrated into the coursework.

PSYC 305: Research Methods in Psychology (3 credits)
Prerequisite: PSYC 100, STAT 101
Basic understanding of research methodology. History of scientific approach, basic elements, methods, design and structure of research with emphasis on data collection, analysis, interpretation; writing reports and ethics of social science research. A small research project will be required – individually or in a group.

PSYC 310: Social Psychology (3 credits)
Nature, scope, historical perspective and research methods. Social perception, cognition and identity; interpersonal relationship, attribution, conformity, pro-social behaviour, groups and leadership, attitude, prejudice and aggression. Facts and theories will be related to everyday social issues and concerns.

PSYC 320: Psychology of Motivation (3 credits)
Prerequisite: PSYC 100
Classical and contemporary theories of motivation; overview of research and theory on the interactive role of biological, learned and cognitive components in motivation of human behaviour. Application of motivation theory to educational, vocational and social areas. A small research project will be required.

PSYC 325: Experimental Psychology (3 credits)
Prerequisite: PSYC 100, 305
History; survey of research methods with special emphasis on experimental design; contribuion of famous psychologists to the field; sensation, perception, learning, memory and motivation; use of animals as subjects. Students will conduct a series of experiments, analyze and interpret data and maintain a note book with written reports of the experiments performed.

PSYC 330: Psychology of Sports (3 credits)
Prerequisite: PSYC 100 or permission of instructor
History of exercise and sport psychology; scientific methods used to evaluate psychological aspects of sports performance; psychological interventions for performance enhancement including motivation, concentration, relaxation, goal-setting, pain-processing, psychological monitoring to optimize training and performance; effects of exercise on anxiety, depression, self-esteem, sleep, and anger; success in sports.
PSYC 340: Abnormal Psychology (3 credits)
Prerequisite: PSYC 100
Nature and concepts of abnormality; historical perspective with special emphasis on Pakistan; psychoanalytic, medical, behavioral, humanistic, and cognitive behavioral models of abnormal behavior; psychological disorders; anti-psychiatry movement; overview of major psychotherapist techniques; prevention of mental sickness.

PSYC 350: Biopsychology (3 credits)
Prerequisite: PSYC 100
Study of behavioral and mental processes from the biological perspective with particular emphasis on the role of neurochemical and endocrine factors in the function of the central nervous system; chemical and neural bases of sensory processes; motivation, emotion, learning, memory, language, sleep, reproduction, gender and psychopathology.

PSYC 360: Psychological Testing and Measurement (3 credits)
Prerequisite: PSYC 100
Functions, origins and basic concepts of psychological testing; test construction, ability/intelligence and personality testing, application of psychological tests in educational, occupational and clinical contexts; ethical issues.

PSYC 380: Psychology of Crime (3 credits)
Prerequisite: PSYC 100
Causes, effects, and effective methods of reducing crime. Historical, sociological and literary perspectives on crime. Theories of criminal behavior; relationship of criminal activity to class, gender, race; negative role of media; poor law enforcement; justice system; types of criminals; victims of crime; impact of crime on social life; control of crime; relationship between crime and punishment; crime in Pakistani society.

PSYC 400: Psychology of Mass Communication (3 credits)
Prerequisite: PSYC 100
The psychological effects of mass communication on behavior and thought; advertising, stereotyping of women, minorities and people belonging to other cultures; effects on children, violence and sex in the media, effects of news on behavior; expectations and misuse of mass media; promotion of pro-social behaviour through mass media.

PSYC 405: Industrial Psychology (3 credits)
Prerequisite: PSYC 100, 360
PSYC 410: Consumer Psychology (3 credits)
Prerequisite: PSYC 100
Methods of studying consumer behaviour, basic psychological concepts concerning consumer behaviour such as perception, cognition, learning, attitude, cognitive dissonance, risk-taking, motivation and personality of the buyer. Emphasis on the interrelations of economic and socio-cultural factors on decision-making including recent research findings. Consumer psychology in Pakistan.

PSYC 430: Health Psychology (3 credits)
Prerequisite: PSYC 100, 340
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.

PSYC 440: Counseling Psychology (3 credits)
Prerequisite: PSYC 100, 340
Introduction to theories, assessment and approaches to counseling; psychoanalytic, client-centered, behavioral, cognitive behavioral, transactional analysis and rational emotive approaches; educational and occupational counseling; for emotional and sexual problems; family, marriage, and community mental health counseling. Ethics in counseling.

PSYC 450: Positive Psychology (3 credits)
Prerequisite: PSYC 100
Designed to promote positive aspects of human behaviour; practical wisdom through a series of exercises in sensitivity and growth; encounter groups and NPL. Optimism, self-confidence, listening and communication skills; time management, handling criticism, happiness, self-esteem, emotional quotient (EQ), morality, empathy, friendship, love, achievement, creativity, music and humor. Students will be asked to maintain a written record of their activities carried out during the course.

PSYC 460: Psychology of Women (3 credits)
Prerequisite: PSYC 100
The psychological, biological, social and life-span development differences and similarities of the genders with emphasis on the major life events of women. Female physiology, female cognitive skills, early socialization into sex roles, stereotyping women in the media, cultural determinants of sex differences; work issues, power relationships between men and women, reproductive concerns, physical and mental health issues, discrimination and violence prevention, equality of genders, psycho-social factors in women's empowerment, status of women in Pakistan.

PSYC 480: Special Topics in Psychology (3 credits)
Prerequisite: PSYC 100, 305 and permission of instructor.
An in-depth analysis of a single important psychological issue/area having immense impact on public behaviour.
Islamic Studies

Learning Objectives

• To provide an intellectual base and guidance in the various branches of religious Studies in order to prepare ethical leadership for the future of Pakistan.
• To inculcate in the learners highest standards of integrity, excellence, fairness and justice, discipline, respect, service and community in accordance with core values and national aspirations.
• To provide analytical and critical study of the material relevant to the modern religious thoughts.
• To broaden religious vision and cultural perspective of the students and to reduce sectarianism and religious prejudices.
• To commit to the noble cause of dissemination of knowledge and to develop human beings capable of undertaking divine responsibilities emerging from their distinguished position as vicegerent of God.

Requirements For Major

36 credit hours including: Core Courses: ISLM 104, 201, 202, 301,302
Options: A) 6 credit hours from ISLM 303,304, 305, 306
B) 12 credit hours from ISLM 401, 402, 403, 404, 405, 406, 407, 499

Course Descriptions

ISLM 101: Islamic Education (3 Credits)
This subject is intended to provide an introductory understanding of Islam: its beliefs, practices, teachings, seerat, human rights in Islam and Islamic civilization. This subject also aims at provide students with a comprehensive understanding of rational vindications of fundamental beliefs of Islam. The subject expands students' cultural horizons by providing insight into the rich diversity of Islamic civilization and its impact on the sub-continent and wider world.

ISLM 103: Islamic Ideology (3 Credits)
Prerequisite: ISLM 101
This course provides insight into the Islamic Ideology and Islamic way of life very rigorously. The course is a balanced combination of basic and higher order thinking. It provides an 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 the competitive examinations.

Department of Religious Studies
ISLM 104: Arabic Grammar & Composition (3 Credits)
Prerequisite: None
This subject aims to provide an introductory understanding of Arabic Grammar and composition. It deals with the basic structure of Arabic Language. Everyday conversation, vocabulary enhancement, translation and composition are the part of contents.

ISLM 201: Tajweed-ul-qur'an (3 Credits)
Prerequisite: ISLM 101
This subject is intended to teach the students how to read and recite the Holy Qur'an. The course deals with speech sounds of Arabic language, Qiraat , Arabic phonology, articulation and accent and pronunciation.

ISLM 202: Quran Studies (3 Credits)
Prerequisite: ISLM 101
This course is designed to assist the students in understanding the Holy Qur'an with its meaning and purpose. The course includes selected readings from the Holy Qur'an, Ulum al-Qur'an (collection, exegesis, and I'jaz al-Qur'an) inimitability of the Qur'an and qualities of Mufassir etc.

ISLM 301: Hadith Studies (3 Credits)
Prerequisite: ISLM 101
This subject provides an introductory study of Ulum al-Hadith (major collections, jarh wa tal'dil) authentication of the sayings of the Holy Prophet (PBUH), importance of Sunnah and reading of selected chapters from Ahadith Books.

ISLM 302: Fiqh -Islamic Law (3 Credits)
Prerequisite: ISLM 101, ISLM 104
This subject will introduce students to the sources of Sharia: Qur'an, Sunnah, Ijma, Qiyas; the need and methodology of Ijtihad; injunctions and their kinds; and it will include text related to Ibadaat.

ISLM 303: Contemporary Muslim World (3 Credits)
Prerequisite: ISLM 101
This subject examines the geographical, social and cultural features of Modern Muslim World. It also includes concept of Ummah, its resources, population, organizations, challenges to the Muslim world and their solution.

ISLM 304: Seerat-un-Nabi (3 Credits)
Prerequisite: ISLM 101
This course aims to provide an understanding of how the development of biographical studies of the Holy Prophet Muhammad (PBUH) influenced Islamic thought throughout Islamic history. The course will examine the Prophet as an example to be followed; the difference between the Prophet's tradition (Hadith) and his biography (seerah); the Prophet's life before his mission; the early period of Makkah where he faced opposition; migration to Madinah; establishment of Islamic State in Madinah; treaties and relations with Non-Muslims; Ghazwaat and conquest of Makkah; the last sermon and its impact on modern human life.
ISLM 305: Inter-Faith Relations (3 Credits)
Prerequisite: ISLM 101, good command over English
This course will examine Islam's perception of other religions, and some Muslim theologians and their approach to other faiths. It will explore the historical interaction between major faiths such as Judaism and Christianity on one hand and Hinduism and Buddhism on the other. The course will explore in some detail the current Christian-Muslim dialogue and its development.

ISLM 306: ISLAM AND SCIENCE (3 Credits)
Prerequisite: ISLM 101
This subject investigates Islamic point of view on science. It includes Qur'an and science; contribution of Muslims toward modern scientific progress; life and work of Muslim scientists; Islam, science and knowledge.

ISLM 401: Comparative Study Of Religions (3 Credits)
Prerequisite: ISLM 101
This upper level course will critically cover the following areas: History and growth of religions, Comparative study of the teachings of religions, This subject will especially examine Islam, Christianity, Judaism, Hinduism and Buddhism.

ISLM 402: Islam And Contemporary Civilization (3 Credits)
Prerequisite: ISLM 101
This subject covers Islamic teachings, cultural legacy, institutions and position of Islam in the contemporary world. The role of religion in international relations has acquired greater salience since the events of '9/11' and the subsequent 'war on terror'. This subject seeks to address the heightened academic interest and also raises issues central to the conflict between Islam and other civilizations. This subject will enable students to offer informed opinions on, and analyses of issues concerning Islam, Muslims and other civilizations. The course comprises of: rise and expansion of Islam; an overview of Islamic history, contents and theology; globalization of Islam; Islam and human rights; influence of Islam on world civilization.

ISLM 403: Modern Islamic Thought (3 Credits)
Prerequisite: PLSC 101, ECON 100
This subject introduces students to the field of Modern Islamic Thought, with the emphasis on Islamic political, economic, social and educational thoughts. Students will develop an understanding of political, strategic, economic and social factors underlying the modern Islam. Thoughts of Jamaluddin Afghani, Shah Wali Ullah and Allama Iqbal will be especially focused.

ISLM 404: Advanced Arabic Communication (3 Credits)
Prerequisite: ISLM 101, ISLM 104
This course prepares students to use Arabic in academic, social and international contexts. It will help participants to develop a balanced proficiency in the four major communication skills e.g. listening, speaking, reading and writing. Advanced structure and some literature will also be included in the contents.
ISLM 405: Islamic Jurisprudence (3 Credits)
Prerequisite: ISLM 101, ISLM 302 or PLSC 330
This course provides a broad perspective of Islamic law and jurisprudence and its development throughout history and examines the contemporary debate on its application. The subject will examine the sources and principles of Islamic law. It will review the evolution of Schools of Law and their impact on various Muslim Societies. Special attention will be given to the application of Islamic law, particularly its impact in modern times and reforms introduced in several Muslim countries.

ISLM 406: Research Methodology (3 Credits)
Prerequisite: ISLM 202, ISLM 301
The course will be examining research strategies, research design, various research methodologies and frameworks, management of research, approaches to data collection, survey methods, observation methods, institutional and organizational research, analyzing data, ethics of research and writing a research proposal. Special focus will be on research in Religious Studies.

ISLM 407: Teaching Of Islamic Studies (3 Credits)
Prerequisite: 15 credits from this department
Since the Department of Religious Studies aims to produce teachers of Islamic Studies at school/college level, this course deals with the teaching techniques including: teaching strategies, classroom management, lesson planning, course designing, assessment and materials development.

ISLM 499: Research Assignment/Project (3 Credits)
Prerequisite: 33 credits from this department
Selected students will be asked to write a research assignment of 50-100 pages on a topic chosen in conjunction with the department’s faculty.
Christian Studies

Learning Objectives

• To provide for Christian students a basic understanding of the Holy Bible and of contemporary interpretations of Christian thought.
• To enable Christian students to find support in their faith for the highest standards of integrity, excellence, fairness and justice, discipline, respect, service and community in accordance with national values and aspirations.
• To prepare students for jobs and service to the Christian community, especially in education.
• To provide an analytical study of religious material relevant to the modern world in general and Pakistan in particular.
• To broaden the base of knowledge and cultural perspective of students and to reduce their sectarianism, provincialism and prejudices.

Course Descriptions

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.

CRST 152: Christian Ethics (3 credits)
To study the Biblical, theological, and philosophical foundations of Christian ethics.

CRST 251: Old Testament (3 credits)
Literature of the Old Testament and the historical, cultural, and political situation from which it evaluated.

CRST 351: New Testament (3 credits)
Literature of the New Testament and the historical, cultural, and political situations in Early Christian world.

CRST 401: Comparative Study Of Religions (3 Credits)
This upper level course will critically cover the following areas: History and growth of religions and Comparative study of the teachings of religions. This subject will especially examine Islam, Christianity, Judaism, Hinduism and Buddhism.
Learning Objectives

To give the students an understanding of the subject and its usefulness in other discipline for effective decision making.

Requirements For The Major

48 credit hours including STAT 201, 202, 301, 303, 310, 312, 331, 403, 451, 461; and any 6 of the following courses: STAT 311, 314, 321, 325, 361, 375, 376, 382, 401, 402, 422, 431, 441, 473, 475, 481, 483.

Course Descriptions

STAT 101: Statistical Methods I (3 credits)
Introduction, data collection and presentation, populations and sample measures of location and dispersion, index numbers, methods of Least-Squares and curve-fitting, correlation and regression.

STAT 102: Probability and Probability Distributions (3 credits)
Set theory, probability, different approaches, laws of probability, conditional probability, Baye's Rule; random variable, discrete and continuous; some standard discrete and continuous probability distributions.

STAT 201: Basic Statistical Inference (3 credits)
Prerequisite: STAT 101, 102
Population and sample, sampling and census, sampling distributions and their properties, point and interval estimation; testing hypothesis about means, variances, proportions.

STAT 202: Introduction to Experimental Design (3 credits)
Prerequisite: STAT 101, 102
Tests of independence in categorized data, tests about parameters of multinomial distributions, nonparametric methods, ANOVA; basic experimental designs and their analysis.

STAT 301: Sampling Techniques (3 credits)
Prerequisite: STAT 201, 202
Population and sample; sampling and census planning, execution and analysis of sample surveys, basic sample designs: simple, stratified, systematic, multistage, cluster, multiphase sampling with application and properties; estimation of means, totals and their variances. Sample size regression and ratio estimation.
STAT 302: Statistical Methods II (3 credits)
Prerequisite: STAT 202
Inference in simple and multiple regression and correlation; checking model adequacy of ANOVA and ANCOVA; design and analysis of completely randomized, randomized complete block Latin Square designs with one or more observations per cell; equal, proportional and unequal observations per cell; approximate and exact F test orthogonal contrast and tests of contrast multiple comparison test; test of additivity; computer applications.

STAT 303: Regression Analysis I (3 credits)
Prerequisite: STAT 101
Simple and multiple, linear and non-linear regression, linearized regression, methods of least square estimation, lack of fit, analysis of residuals, ANOVA, stepwise, regression, inference about regression; computer applications.

STAT 304: Distribution Theory (3 credits)
Prerequisite: STAT 102

STAT 311: Sampling Techniques II (3 credits)
Prerequisite: STAT 301
Cluster sampling for equal and unequal in sizes and estimation of mean, total and variances, probability proportional to size sampling with and without replacement, multinomial sampling, Hansen and Hurwiz estimation, Horvitz and Thomson estimator, selection procedure using unequal probability sampling, Lahiri, Midzuno, Yates and Grundy, Brewer, Duskin; sample for random systematic and their use in Horvitz-Thomson estimator; special selection procedures such as Das, Murthy, Rao-Hartly, Cochran and Poisson Sampling; application of unequal probability with and without multistage, stratified multistage sampling estimation of means, total variances and ratio in single and multistage sampling.

STAT 312: Experimental Design I (3 credits)
Prerequisite: STAT 101, 302
Random experiments, planning and execution of experiments; experiments with one factor, completely randomized designs, Latin Greece, Latin squares designs; analysis of variance, fixed, random and mixed models; expectation of mean square, test of additivity, multiple comparison procedures.

STAT 314: Experimental Design II (3 credits)
Prerequisite: STAT 312
Experiments with more than two factors; analysis of variance, fixed random and mixed models, factorial designs and experiments, confounding and factorial replication, multiple comparison tests; split pilot and nested designs.
STAT 321: Regression Analysis II  (3 credits)
Prerequisite: STAT 302
Matrix algebra and its applications in regression ANOVA. Variance and covariance of regression coefficients, variance of estimators, testing of general linear hypothesis, bias in linear regression estimates; examination of residuals, model building, non linear regression.

STAT 325: Time Series Analysis (3 credits)
Prerequisite: STAT 303
Types of time series data, time series models, trends, seasonal and cyclic analysis of data, irregular series, short term forecasting, index numbers and index series, simple and weighted price, indices construction, indices as statistical indicators, tie series of random data, fluctuations, seasonal, cyclic trends, serial correlation, auto correlation; stationarity, model building, ARM A and ARIMA models, diagnostics checking, forecast, Box-Jenkin's approach, spectral analysis, computer applications.

STAT 331: Mathematical Statistics (3 credits)
Prerequisite: STAT 102
Random variables and their probability distributions, moment generating function, characteristic function, transformation of variables, t, X² and F distributions with properties, distribution of order statistics, non-central distributions.

STAT 361: Non Parametric Statistics (3 credits)
Prerequisite: STAT 202
Order statistics and ranks, confidence limits for percentiles, binomial tests for percentiles, Wilcoxon signed rank test and rank-sum test, the sign test, the run test and test of randomness goodness-of-fit tests, the Kruskal-Wallis test, the Friedman's test, the Mann-Whitney-Wilcoxon test, non-parametric regression, computer applications.

STAT 370: Economic Statistics (3 credits)
Prerequisite: STAT 321
Types and sources of economic data; indices concepts of statistical indicators, e.g. GNP, GDP, inflation rates, wholesale prices; least square method fitting of polynomial, regression analysis when both independent and dependent variables are subject to error; stepwise method of fitting regressions, identification, autocorrelation, serial correlation, forecasting with sample global and sub-global economic models, computer applications.

STAT 371: Business Statistics (3 credits)
Prerequisite: STAT 101
Business, economic and industrial data; data sources, organization and descriptive representation of data, graphic and pictorial representations, data analysis, computer applications, measures of location and shape, moments, kurtosis and skewnesses; indices and their tests, analysis of price production functions, elementary time series analysis, national income accounting methods, computer applications.
STAT 375: Econometrics (3 credits)
Prerequisite: STAT 321, 370
Two-stage least squares, specification and estimation of their linear regression model; time
series methods including time logs; deriving estimates using generalized least squares
methods; basic idea of non-linear regression with estimation of parameters linearizing
non-linear equations multicollinearity, heteroscedasticity, auto-correlations, errors in variables.

STAT 376: Operations Research (3 credits)
Prerequisite: STAT 102
Introduction to operational research, nature and purpose; mathematical modeling; general
linear programming, simplex method, dual problems, post optimality analysis; transportation
problem, network problem, decision theory, pay off tables, decision trees, dynamic
programming, project management, critical path analysis, PERT/CPM., inventory control,
queueing theory, derivation of exponential arrival and services times, developments of
simple queue; steady state model and its economic analysis.

STAT 382: Reliability Analysis (3 credits)
Prerequisite: STAT 102
Review of statistical probability functions, basic reliability definitions, failure time
distribution, exponential time-to-failure models, hazard rates, life testing, reliability
estimation with a known time-to-failure distribution, estimation of parameters with the
exponential time-to-failure distribution, estimation of parameters with the Weibull failure
time distribution, system reliability.

STAT 401: Stochastic Processes (3 credits)
Prerequisite: STAT 331
Introduction to Stochastic Process, random walk and ruin problem, Markov chains and
Markov process; correlation function, power spectra and linear systems, Renewal Theory
Brownian motion; application to the physical sciences.

STAT 402: Advanced Probability Theory (3 credits)
Prerequisite: STAT 102
Events, sample space and probability space; algebra of random variable, process with
independent functions and Laplace transforms, Central Limit Theorem, inequality and
law of large numbers.

STAT 403: Point Estimation (3 credits)
Prerequisite: STAT 102
Concept and problem of estimation. Properties of estimators: Unbiasedness, Consistency,
Sufficiency, Efficiency, Completeness, Methods of estimations: Moments, Maximum
likelihood, Least Squares, Minimum Chi-squares, Bayes method of estimations.

STAT 422: Linear Models (3 credits)
Prerequisite: STAT 321
Least square estimation, best linear unbiased estimation, parameterization, matrix approach,
multivariate normal distributions, distributions of quadratic forms, full rank and non-full
rank models, estimability, testing linear hypothesis, simultaneous confidence regions.
STAT 431: Decision Theory (3 credits)
Prerequisite: STAT 102
Decision-making under uncertainty; decision trees, comparison of decision rules including Bayes and minimax rules; structure of complex and multiple decisions.

STAT 441: Demographic Methods (3 credits)
Prerequisite: STAT 101
Population studies, demography and vital statistics, census and samples, populations census, age distribution and population pyramids, computation of rates and ratios, various statistical indicators, internal and external migration, variation, general and specific mortality and fertility rates, population studies of a country, growth function, statistical projection techniques, fitting of mathematical models, logistic growth curve, population projections, life table and their construction by computers, model and national life tables, mathematical demography.

STAT 451: Applied Multivariate Analysis (3 credits)
Prerequisite: STAT 435
Multivariate data, measurement scales, review of multiple regression analysis, principal component methods and factor analysis, canonical correlation, use of multivariate statistics computer packages, Hotelling T procedures, multivariate analysis of variance, discriminant analysis, multivariate distance, categorical data analysis.

STAT 461: Hypothesis Testing (3 credits)
Prerequisite: STAT 403
Tests of hypotheses; simple and composite hypothesis, critical regions, Neyman-Person Lemma, Power functions, Uniformly most powerful test. Deriving tests of hypotheses for parameters in Normal, Exponential, Gamma and Uniform distributions.

STAT 473: Biostatistics (3 Credits)
Introduction, probability distributions for biological variables, probit and logit transformations, ANOVA in biostatistics. Developing the G test, R x C test of independence.

STAT 475: Robust Methods (3 Credits)
Introduction, objective function, M-estimator, E-estimator, R-estimator and W-estimator. Influence function, outliers and influential observations, Outliers in Regression analysis.

STAT 481: Statistical Quality Control (3 credits)
Prerequisite: STAT 101, 314
Control concepts and methods attributes and variables, construction of control charts, acceptance sampling plans, quality improvement procedures; Taguchi methods of on-line or off-line approach to quality improvement; signal-noise ratios using orthogonal arrays.
STAT 483: Survival Data Analysis (3 Credits)
Basic concepts, censored observations, function of survival time, hazard function, Kaplan Meier product limit estimate of the survival function, non-parametric methods of estimating the survival function. Gehans Generalized Wilcoxon test, log rank test, survival distributions.

STAT 490: Research Project (3 credits)
Students with CGPA 2.5 or above will be eligible for research; Students with CGPA less than 2.5 will have to take any other course from the list of electives.
Learning Objectives

• To enable students to communicate their ideas in a comprehensive and authoritative way in Urdu.
• To present a view of the evolution of Urdu.
• To broaden their vision of life and their place in society and to invoke a spirit of creativity.
• To develop an analytical and critical approach towards different life scenarios.
• To develop literary taste for the sake of better understanding literature from around the world.
• To expose students to new truths through literary research and criticism.

Requirements For The Major

36 credit hours including: URDU 201, 203, 204, 302, 405, 406 (research projects).

Course Descriptions

URDU 101: Communicative Urdu (3 credits)
Communication and its different means; brief introduction Urdu language; some fundamentals of Urdu grammar; functional Urdu; creative writing; journalistic Urdu.

URDU 102: Art of Translation and Comprehension (3 credits)
Definition and importance of translation; basic structure of Urdu and English languages; translation from Urdu to English and English to Urdu; principles and practic of bilingual comprehension; precis writing.

URDU 103: A selection of Urdu Verse (3 credits)
Ghazal: Ghalib, Mir and Iqbal; Nazam: Nazeer Akbar Abadi, Akbar allah Abadi, Majeed Amjad, Syed Zamir Jafri.

URDU 104: A selection of Urdu Prose (3 credits)
Letters: Ghalib; Essays: Sir Syed Ahmad Khan, Wazir Agha, Muhtaq Ahmad Yousfi; Short Story: Prem Chand; Character Sketch: M. Abdul Haque; Extract of Travelogue: Begum Akhtar Riaz-ud-Din.

URDU 201: A Brief History of Urdu Language and Literature (3 credits)
Introduction to Urdu language and theories regarding its origin; phases and trends in urdu literature uptill the 20th Century: Urdu in Delhi and Lucknow; evolution of Urdu prose.

Department of Urdu
URDU 202: Classic Urdu Poetry (3 credits)
Introduction to classicism; study of classical Ghazal – Mir Taki Mir, Khawaja Mir Dard, Haider Ali Atish, Asad-u-Allah Khan Ghalib; Masnawi – Mir Hasan; Marsiya – Mir Aneess.

URDU 203: Urdu Fictional Prose (3 credits)
Evolution of Urdu Fiction before 1850 and the services of Forte William College; selected extracts from the novels Ibn-ul-Waqat by Deputy Nazir Ahmad and Umra-o-Jaan Ada by Mirza Hadi Ruswa; short stories: Prem Chand, Ghulam Abbas, Saadat Hassan Manto, Intizar Hussain.

URDU 204: Urdu Grammar and Literary Terms (3 credits)
Ilm-ul-Bayan; Ilm-ul-Badih; Adabi Istalahat; Ilm-ul-Arooz.

URDU 205: Pakistani Poetry (3 credits)
Brief background of Pakistani poetry – Munir Niazi, Shahzad Ahmad, Ahmad Faraz; Nazam: Munir Niazi, Anwar Masood, Parveen Shakir, Amjad Islam Amjad.

URDU 206: Pakistani Prose (3 credits)
A brief introduction to Pakistani fiction and prose; novel by Abdullah Hussain and short stories by Ahmad Nadeem Qasmi, Mumtaz Mufti and Bano Qudsya.

URDU 207: Literary Journalism (3 credits)
Difference between journalistic and literary use of language; evolution of literary journalism in Urdu; leading literary journals: Saqi, Adabi Dunya, Fanoon, Naqoosh, Takhleek.

URDU 208: Script Writing in Urdu (3 credits)
Documentary writing: Programme scripts, Journalistic scripts, Business scripts, Drama and film scripts.

URDU 301: Modern Urdu Poetry (3 credits)
Ghazal: Hasrat Mohani, Faiz Ahmad Faiz, Nasir Kazmi; Nazam: Majeed Amjad, Faiz Ahmad Faiz; lyrics – Hafeez Jalandhry; an analysis of Urdu poetry in the 20th Century in a nutshell.

URDU 302: Criticism (3 credits)
Basic principles and definition of criticism; Oriental criticism; Western criticism; Practical criticism.

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.

URDU 304: Biographical Literature in Urdu (3 credits)
Evolution of biographical literature in Urdu; biography of Khawaja Altaf Hussain Haali.
URDU 305: Autobiographical Literature in Urdu (3 credits)
Evolution of autobiographical literature in Urdu: selected autobiographers: Abdul Majeed Salik, Rashid Ahmed Siddiqui, Ihsan Danish, Qudrat Ullah Shahab.

URDU 306: Travelogues in Urdu (3 credits)
Evolution of travelogues in Urdu; selected extracts from Mahmood Nizaami, Begum Aktar Riaz-ud-Din, Ibn-e-Insha, Mustansar Hussain Tarar.

URDU 401: Study of Iqbal (3 credits)
Poetry: Ghazal, Urdu Nazams, Persian Nazams; prose: selected letters.

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, Man Chalay Ka Soda

URDU 403: Modern Literary Movements in Urdu (3 credits)
An introduction to literary movements - modernity and modernism; important movements of the 20th Century - Romanticism, Progressive Movement, Symbolism, Modernism.

URDU 404: Selected Translation of Western Literature (3 credits)
Importance of translated literature; Sadarath by Herman Hesse; short stories by Marques and Kafka; drama by Chekov; Essays by Bertrand Russell.

URDU 405: Principles of Literary Research (3 credits)
Definition and importance of literary research; evolution of Urdu research uptill Aab-e-Hayat by M. Hussain Azad; principles and resources of research; terminology and preparation of research paper.

URDU 406: Practical Research (6 credits)
A research paper of 50-100 pages on any topic regarding Urdu language and literature.
Admission
Forman Christian College seeks academically qualified students who link academic seriousness with the potential for and a commitment to leadership and service to local community, church or mosque, state and nation. We seek students who are highly motivated to make a contribution in solving the problems of our society; those who have demonstrated behaviors that indicate a sense of social responsibility rather than pursuit of narrow self-interest.

The following will be considered for admission:

a) Students who have passed the Intermediate examination within the preceding two years and secured 50% marks.

b) Students who have passed the 'A' level examination within the preceding two years and secured a 'C' average.

c) Students who have passed the American High School Diploma within the preceding two years and secured a 'C' average.

Candidates who meet this minimum standard and complete the application for admission must appear for an interview in which faculty members will judge their academic seriousness and potential for leadership and service.

The University will admit a specified number of students each to Reserved Seats on the basis of Sports, Co-curricular Activities, Kinship, Disability, Overseas Pakistani Children and Minority status.

Application Procedures

1. Request the application forms from the Admissions Office.
2. Complete and return the application to the Admissions Office.
3. Submit the original character certificate from the institution last attended to the Admissions Office of Forman Christian College, Ferozepur Road, Lahore 54600.
4. Watch for the admissions notice and appear for the interview at the requested time.

Financial Assistance

Within the limits of its financial resources, Forman Christian College seeks to make its educational program available to deserving students who may not be able to afford the full cost of tuition and fees. Thus, tuition and fee concessions are available for deserving and needy students who are accepted for admission. Priority is given on the basis of merit, recommendations and special talent. The total budget for scholarships and fee concessions in 2005-2006 is in excess of Rs. 22 million.

There are several special scholarship programmes available through funding sources external to the college.
Special Talent Scholarship

The United States Agency for International Development has funded 200 full tuition scholarships for very bright and needy students who meet criteria established by Forman Christian College.

William C. Gaston Scholarships

The William C. Gaston Scholarships were established by his friend, Larry Powell, to honor a prominent business leader in Atlanta, Georgia (USA). The scholarships are available to promising and needy Christian students.

Financial Assistance Application Procedures

Students who need financial assistance or who qualify for the Special Talent Scholarship must complete the Financial Assistance Application Form immediately upon being accepted for admission to the college. The forms are available from the Office of Admissions.

Students who receive scholarships and fee concessions must maintain satisfactory progress toward their degree in order to retain their financial assistance.

Expenses

Forman Christian College is a private, not-for-profit educational institution. All tuition and fee income goes directly to the support of the educational program. Indeed, tuition and fees pay only a portion (approximately 73%) of the educational costs per student. Thanks to the support of donors, the balance of costs is paid from endowment income and gift income from individuals, churches, corporations and foundations.

Admission fee payable at the time of admission: Rs. 4,000
### Tuition and Fees

<table>
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<tr>
<th>Programme</th>
<th>Per Semester</th>
<th>Per Year</th>
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<tr>
<td>B.A. Programme</td>
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<td>B.Sc. Programme</td>
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<tr>
<td>BCS/BIT Programmes</td>
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All students are required to pay two security deposits which are refundable:

- General Security Deposit: Rs. 1,000
- Library Security Deposit: Rs. 1,000

All tuition and fees must be paid on the date specified by the college. If a student fails to pay the required amount by the specified date, he or she will be fined Rs. 50 per day. Students whose fees remain in arrears for two months will be dropped from the college rolls and will have to pay a readmission fee of Rs. 500/- in addition to the full payment of all outstanding tuition and fees.

Tuition and fees once paid are not refundable except in very unusual circumstances. Students must apply for the refund of their security deposits immediately after leaving F.C. College. Claims for the refund of security deposits after three months will not be entertained. If a student leaves the College without informing the office to this effect in writing, he or she will forfeit his/her security deposit.

An installment plan is available for the payment of college expenses.

Summer Semester Courses will be charged at Rs. 1000/- per credit hour.

### Hostel Expenses

Students who are assigned rooms in the hostels will pay the following charges:

- Hostel Fee: Rs. 6,300/- per year
- Room Rent: Rs. 240/- per year
- Security Deposit (refundable): Rs. 3,000/-
- Utilities charges: Rs. 400/- per month**
- Mess Charges: Rs. 2,500/- per month

**the utility charges are calculated for each hostel each month and divided equally among all residents of each hostel. The charges vary from month to month depending on such factors as the weather that determine the use of electricity or gas.**
The Faculty of Forman Christian College
Department of Biological Sciences

Dr. Mian Wajahut Hussain
Chairperson
Ph.D (Florida, USA), M.Sc. (Pb.)

Hamid Saeed
Registrar & Professor
M.Sc. (Pb.), B.Ed., M.Ed (Pb.)

Dr. M. Rehan Siddiqui
Dean of Natural Sciences & Professor
Ph.D (Miami Univ., USA), M.Sc. (Pb.)
M.S (Univ. of Cincinnati, USA)

Dr. Kunwar Shoaib
Professor & Dean Post Graduate Deptt.
Ph.D (Pb.), M.Sc. (Pb.), B.Sc. (Hons)

Dr. Ejaz Rasul
Professor
Ph.D (Washington State Univ., USA)
M.Sc. (Pb.)

Muhammad Akram Chaudhry
Professor
M.Sc. (Pb.)

Dr. William George
Professor
Post Doctoral Diploma, Ph.D. (Germany),
M.Sc. (Pb.)

Zia-ul-Islam
Professor
M.Sc. (Pb.)

Abdur Rehman Saeed
Associate Professor
M.Sc. (Pb.)

Amjad Tariq Ahmad
Associate Professor
M.Sc. (Pb.)

Nasrullah Khan
Associate Professor
M.Sc. (GCU, Lhr), B.Ed. (Pb.)
B.Sc. (Hons)

Shahnawaz Cheema
Associate Professor
M.Sc. (Pb.), B.Ed. (Pb.)
(Curtin Univ. of Technology, Perth)
PGD in Science Edu.
(Curtin Univ. of Technology, Perth)

Dr. Khalid Zamir Rasib
Assistant Professor
Ph.D (Pb.), M.Sc. (Pb.)

Saraphine Salik
Assistant Professor
M.Sc. Hons (Agri. Univ. Fsb)
M.Sc. Hons (Sydney, Australia)

Nasir Jalal
Assistant Professor
M.Sc. (Pb.), MCS (AIOU)

Lubna Samuel
Lecturer
M.Sc. (Pb.)

Nadeem Asad Ullah
Lecturer
M.Sc. (Pb.)
Business and Management

Dr. Zafar Iqbal Qureshi
Professor, Chairperson Dean of School of Management
Ph.D (Univ. of Pittsburgh, USA)
MBA (American Univ. of Beirut, Lebanon)

Dr. Michel Murphy
Professor
Ph.D. (Uni. of California, Los Angeles, USA)

Wasif M. Khan
Professor
MPPM (Yale Univ., USA)
M SME (Oregon State Univ., USA)
B.Sc. (Pb.)

Mr. Shehzad Bashir Butt
Assistant Professor
MBA (CCC & M, Lahore), MBA (Pb.)
CA (ICAP, Karachi)

Dr. Bashir Ahmad Khan
Professor and Dir. of Executive Education
D.Phil Management Studies - Finance (Univ. of Oxford)
M.Sc. (Univ. of Oxford)
MPA (Penn. State Univ.)
M.Sc. (Univ. of Oxford)

Fakir Syed Aijaz ud Din
Professor
Chartered Accountant

Department of Chemistry

Dr. Sylvia E. Benjamin
Chairperson
D.Phil (Oxford, UK), M.Sc. (Pb.)

Dr. Mohammad Amjad
Professor
Ph.D (Southampton, UK), M.Sc. (Pb.)

Dr. Abdul Waheed Khan
Professor
Ph.D (Pb.), M.Sc. (Pb.)

Dr. Christy Munir
Professor
M.Sc. (Psh. Univ.)
Ph.D (Wayne State Univ., USA)

Dr. C. M. Ashraf
Professor
Ph.D (Belfast, UK), M.Sc. (Pb.)

Saadia Rashid Tariq
Assistant Professor
M. Phil. (Oxford, UK), M.Sc. (Pb.)

Shazma Azeem
Assistant Professor
M.Sc. (QAU, Isb)
M.Phil (QAU, Isb)

Lubna Amer
Lecturer
M.Sc. (Pb.)
Amjad Iqbal
Lecturer
M.Phil (UET, Lhr)
M.Sc. (UET, Lhr)
M.Sc. Computer Sciences (FACT, Lhr)
MBA (Preston Univ., Lhr)

Naveed Ahmed
Lecturer
M.Sc. (Pb.)

Naveed Rahmat
Lecturer
M.Sc. (Pb.)

Anila Anwar
Lecturer
M.Sc. (UET, Lhr)

Noman Javed
Lecturer
M.Sc. (UET, Lhr)

Naeeem Asad Ullah
Lecturer
M.Sc. (Pb.)

Dr. Iftikhar Hussain Shah
Chairperson & Professor
Ph.D. (Uni. of Wales, U.K.)

Dr. S. Shahid Hussain Jaffri
Professor
Ph.D. (Uni. of Manchester, U.K.)

Maj Retd. Muhammad Akram Naul
Assistant Professor
M.Sc. (UET, Lahore)

Asher Irfan Saroia
Lecturer
MCS (Askari College of Com. Sc.)

Amjad Iqbal
Lecturer
M.Phil (UET, Lhr)
M.Sc. (UET, Lhr)
M.Sc. Computer Sciences (FACT, Lhr)
MBA (Preston Univ., Lhr)

Dr. Muhammad Wasif Siddiqi
Chairperson & Professor
Ph.D. (Pb.), M.A. (Pb.)

Habib Ullah Vaseer
Associate Professor
M.A. (Pb.), M.A. Pol. Sc.(Pb.)
EPM (AIOU)

Dr. Karamat Ali
Professor
Ph.D. (Vanderbilt Uni., USA)
M.A. (Vanderbilt Uni., USA)

Abdia Elvin
Associate Professor
M.A. (Pb.)
M.Sc. Rural Development (Univ. of Sindh)
LLB (Pb.)

The Faculty of Forman Christian College
Aslam Yuhanna  
Associate Professor  
M.A. (Pb.)  
M.S. (Colorado State Univ., USA)

Mian Ghulam Farid  
Associate Professor  
M.A. (Pb.)

Habib Ullah Vaseer  
Associate Professor  
M.A. (Pb.), M.A. Pol. Sc.(Pb.)  
EPM (AIOU)

Shabib Haider  
Assistant Professor  
M.Sc. (GC, Lahore)

Muhammad Afzal Tabassum  
Assistant Professor  
M.Phil (GCU, Lahore), M.A. (Pb.)

Aneel Salman  
Lecturer  
M.A. (Pb.)  
Environmental Eco. (Italy)  
MBA (Hons)  
PGD Applied Eco (Pb.)  
PGD Business Admin (Pb.)  
PGD Local Self Government (Pb.)  
PGD Stat. & Comp. (Pb.)  
PGD International Affairs (Pb.)

Atif Shakeel Saroia  
Lecturer  
M.A. (Pb.)  
PGD in Applied Economics (Pb.)

Uzma Hanif  
Lecturer

Dr. James Shafi  
Professor & Dean Faculty of Education  
Ph.D (Fordham Univ., USA)  
M.Ed., B.Ed. (Pb.)

Dr. Cusrow J. Dubash  
Vice Rector & Associate Professor  
Ph.D Educational Psychology (Washington Int’l Univ., USA)  
M.Sc. Microbiology (Univ. of Khi)  
M.Ed. (Univ. of Houston Texas, USA)  
M.Ed. (College of New Jersey, USA)

Cheryl Burke  
Assistant Professor  
M.Ed. (Georgia State Univ., USA)

Sumera Rashid Malik  
Assistant Professor  
M.A. Education (Pb.)
Dr. Waseem Anwar  
Chairperson  
Ph.D. (Indiana University of Pennsylvania, USA), M.Phil (Pb.), Diploma in TEIL (UGC), M.Sc. (Pb.)

Zamir Hussain Naqvi  
Associate Professor  
M.A. (Pb.)  
M.A. Linguistics (Univ. of Newcastle, UK)  
PGD in ELT, TEIL, TEFL (AIOU, Isb)  
Cert. TEFL (Leads, UK)

Khurshid Alam Gill  
Associate Professor  

Rahat Shafique  
Associate Professor  
M.A. (Pb.), PGD (AIOU), B.Ed. (Pb.)

Safdar Ali  
Associate Professor  
M.A. (Pb.), PGD in ELT (AIOU)

Sajid Hasnain  
Associate Professor  
M.A. (Pb.)

Amber Mall  
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M.A. (Pb.)

Mahmood Ali  
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M.A. (Pb.), PGD in ELT (AIOU)

M. Iqbal Zafar  
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M.A. (Pb.), PGD in ELT (AIOU)

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Assistant Professor  
M.A. (Pb.)

Adeel Salman  
Lecturer  
M.A. (Pb.)

Afsheen Afzal  
Lecturer  
M.A. (GCU, Lhr), B.Ed. (Govt. Education College, Lhr.)

Andrea Mary Khair Ullah  
Lecturer  
M.A. (Pb.)

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Lecturer  
M.A. (BZU, Mul)

Azeem Alphonce  
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Lecturer  
M.A.(Pb.)

Fatima Syeda  
Lecturer  
M.A.(Pb.)

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Lecturer  
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M.A. (Pb.)

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M.A. (GCU, Lhr)

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M.Sc. (Pb.)

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M.Sc. (Pb.)
B.Ed. (Pb.)

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Sohail Ahmed
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M.Sc. (Pb.)

M. Arif Qureshi
Chairperson
M.A. (Pb.)
LLB (Pb.)

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Fayyaz Ahmad Khan
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M.A. (Pb.), LLB (Pb.)

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M.A. (Pb.), M.A. English (Pb.) & B.Ed.

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M.A. (Univ. of Chicago, USA)
M.A. (Univ. of California, USA)
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Javaid Austin
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Shahzad Yousaf
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M.Sc. (Pb.)

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M.A. Pol. Sc. (Islamia Univ., Bwp)
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M.S. (Sofia Univ., Bulgaria)

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Ashar Ghulam
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M.Sc. (Pb.)

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PGD Computer Science
(Nicon College of Computer Science)

Asim Nadeem
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M.Sc. (Pb.)

Munir Arjumand Khan
Associate Professor
M.Sc (Pb.)

Frank E. John
Associate Professor
M.Sc. (Pb.)

Kabir Ahmed
Associate Professor
M.Sc. (Pb.)

Mohammad Nawaz
Associate Professor
M.Sc (Pb.)

Safdar Ali Mirza
Associate Professor
M.Sc. (Psh. Univ.)

Parvez Stephen
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M.Sc. (Pb.)

The Faculty of Forman Christian College
Department of Health & Physical Education

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M.A. (Pb.)

Shahzad Nazir
Lecturer
M.A. (Pb.)

Tariq Yaqoob Rustom
Assistant Professor
M.A. (Pb.)

Department of Political Science

Khadija Zia
Chairperson
M.A. (Pb.)

Wilson Salman
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Dr. Imtiaz H. Bukhari
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Ph.D SAIS (John Hopkins Univ., USA)
M.A. SAIS (John Hopkins Univ., USA)
M.Sc. War Studies (QAU, Isb)

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Ph.D (Univ. of Adelaide, Australia)
M.A. (Univ. of Sussex, UK.)
M.A. (Arizona, USA)

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M.A. (Pb.), M.Ed. (Pb.)

Imran Iqbal
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Department of Psychology

Dr. Peter H. Armacost
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Professor
Ph.D (Pennsylvania State Univ., USA)

Dr. Gregory W. Brock
Professor
Ph.D (Pennsylvania State Univ., USA)

Abdul Hamid
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M.Sc. (Pb.)

Aisha Ikram
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M.Sc. (Pb.)

Department of Statistics

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Ph.D (Univ. of Surrey, Uk)
M.Sc. (Pb.)

Mohammad Aslam
Associate Professor
M.Sc. (Pb.)

Mohammad Rasheed
Associate Professor
M.Sc. (Pb.)

Mazhar Ullah Najmi
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M.Sc. (Pb.)

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M.Sc. (Pb.)

Khalid Javed
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M.Sc. (Pb.)

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M.Sc. (UA, Fsb)

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M.Sc. (GCU, Lhr)

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M.Sc. (BZU, Mult)

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M.A. Punjabi (Pb.)
M.A. English (Islamia Univ., Bwp)

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M.A. Punjabi (Pb.), LLB (Pb.)

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M.A. History (Pb.)

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M.Ed. (New Jersey, USA),
M.A. (Michigan State Uni., USA)

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M.A. (Pb.), M.A. Pol. Sc. (Pb.),
B.Ed. (Uni. of Punjab)

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M.F.A. (Southern Methodist Uni. USA)

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M.Phil (Punjab Uni.),
M.A. (Islamia Uni., Bahawalpur)

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Lecturer
M.Phil, M.A. (Pb.)

Nadia Bruce Khan
Lecturer
M.A. Mass Communication (Pb.)

Naila Sahar
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M.Phil (GCU, Lahore),
M.A. (GCU, Lahore)

Saleem Abbas
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M.A. Urdu (Islamia Uni. Bahawalpur)

Dr. Mary-Linda Armacost
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Ph.D. (Pennsylvania State Uni. USA)
Office of the Rector

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Rector
Ph.D (Univ. of Minnesota, USA)

Christy Munir
Vice Principal
Ph.D (Wayne State Univ., USA)

Jeanette Coufal
Executive Assistant to the Rector (Academic)
Ph.D (Penn. State Univ., USA)

Marianne Vermeer
Executive Assistant to the Rector (Finance)
MBA (Wharton School of Business, USA)

Jean Albert
Administrative Assistant
M.A. History (Pb.)

Office of the Vice Rector

Cusrow J. Dubash
Vice Rector
Ph.D (Washington International Univ., USA)

Shazia Salman
Assistant Vice-Rector
M.A. (Pb.), PGD in ELT (Pb.)

Mian Wajahat Hussain
Controller of Examinations
Ph.D (Florida, USA)

Pervez Samuel Dean
In-Charge Academic Branch
M.A. (Pb.) Cert (Univ. of Edinburgh, UK)

Amber Mall
Director Admissions
M.A. (Pb.)

Mohd Kashif Fida
Director Career Planning & Placement
M.Sc. Counseling Psychology (Pb.)

A. R. Saeed
Coordinator of A-Level Program
M.Sc. (Pb.)

Manzoor Ahmad Khan Anjum
Chief Librarian

Student Affairs

Muhammad Nawaz
Chief Proctor
M.Sc. (Pb.)

Khurshid Alam Gill
In-Charge Co-Curricular Activities

Cheryl Burke
Dean of Students
M.Ed. (Georgia State Univ., USA)
## Financial Affairs

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parvez Rahmat Ullah</td>
<td>Bursar</td>
<td>B.A. (Pb.)</td>
</tr>
<tr>
<td>Ashraf Kamil</td>
<td>Administrative Officer</td>
<td>B.A. (Pb.)</td>
</tr>
<tr>
<td>David Francis</td>
<td>Chief Fiscal Officer</td>
<td>M.A. (Pb.)</td>
</tr>
<tr>
<td>Ian Bell</td>
<td>Project Manager</td>
<td>M.Sc. (Nottingham, UK)</td>
</tr>
<tr>
<td>Zafar Iqbal</td>
<td>Chief Accountant</td>
<td>B.Com., C.A. (Inter)</td>
</tr>
<tr>
<td>Maj. (R) Zaheer Jalal Din</td>
<td>Director of Security</td>
<td>B.A. (Pb.)</td>
</tr>
</tbody>
</table>

## Office of Advancement

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Qualification</th>
</tr>
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<tbody>
<tr>
<td>Manzur Gill</td>
<td>Chief Advancement Officer</td>
<td>Ph.D (Southern Methodist Univ., USA)</td>
</tr>
<tr>
<td>Vacant</td>
<td>Director of Communications and Publications</td>
<td></td>
</tr>
<tr>
<td>Hina Abel</td>
<td>Office Manager</td>
<td>MBA (Bellarmine Univ., USA)</td>
</tr>
</tbody>
</table>

## Establishment

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Qualification</th>
</tr>
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<tbody>
<tr>
<td>Hamid Saeed</td>
<td>Registrar</td>
<td>M.Sc. (Pb.)</td>
</tr>
<tr>
<td>P.L. Nasir</td>
<td>Superintendant</td>
<td>F.A.</td>
</tr>
</tbody>
</table>

## Friends of FCC in the USA

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vickie Hickam</td>
<td>Office Manager</td>
<td>B.A. (Oglethorpe University, USA)</td>
</tr>
</tbody>
</table>
Board of Governors

Mr. Jamshed Rahmat Ullah (Chairman) Advocate
Dr. Arthur James (Vice Chairman) Principal, Gujranwala Theo. Seminary
Dr. Peter H. Armacost Rector, Forman Christian College
Syed Babar Ali Businessman and Philanthropist
Mr. Ahmad Saeed Chairman, Service Industries
Dr. Mira Phailbus Principal Kinnaird College
Rt. Rev. Dr. Alexander John Malik Bishop of Lahore
Mr. Syed Khalid Akhlaq Gilani Secretary of Education, Govt. of the Punjab
Dr. Shahid Amjad Chaudhry Rector, Lahore School of Economics
Lt. Gen. (R) Arshad Mahmood Vice Chancellor, Univ. of the Punjab
Grp. Capt. (R) Cecil Chaudhry Principal, St. Anthony’s School & College
Rt. Rev. Samuel Azariah Bishop of Raiwind
M s. Zeb K. Zaman Principal (Retd.), Kinnaird Academy
Dr. Maqsood Kamil Seminary Professor
Mrs. Vee da Javaid Educator

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Dr. Peter H. Armacost Rector, Forman Christian College
Dr. Mira Phailbus Principal Kinnaird College
Rt. Rev. Dr. Alexander John Malik Bishop of Lahore
Group Captain (R) Cecil Chaudhry Principal, St. Anthony’s School & College
Rt. Rev. Samuel Azariah Bishop of Raiwind
M s. Zeb K. Zaman Principal (Retd.), Kinnaird Academy
Dr. Maqsood Kamil Seminary Professor
Mrs. Vee da Javaid Educator
Dr. Simon Park Educator
Mr. Anthony Richard Business Management
Mr. Saleem Bhatti Advocate
Dr. Carol Rees Medical Doctor
Mr. Lawrence Harrison Business Management
Distinguished Alumni

GENERAL PERVEZ MUSHARRAF, completed his Intermediate (Sciences) studies at F.C. College in Lahore and joined the Military Academy in 1962. His rise to the pinnacle of leadership as President of Pakistan was a natural outcome of his shrewd tactical skills and undisputed leadership qualities. As a Formanite, General Pervez Musharraf nostalgically recalled his experience at F.C. College (from 1959 to 1961) during his speech at the Postgraduate Centennial Convocation held in May 2000 and again during his speech at his December 2003 visit. He fondly recalled the lush green grounds and campus facilities such as the gymnasium and swimming pool which were amongst the few which were then available to F.C. College students. He was reminiscent of his active interest and participation in athletics, bodybuilding and several other co-curricular disciplines during his student days at Forman Christian College.

CHAUDHRY PARVEZ ELAHI, the present Chief Minister of the Punjab, graduated from Forman Christian College in 1967. He commenced his political career in 1983. For a period of 8 years, he led the Ministry for Local Government and Rural Development. He was elected Member of Provincial Assembly of Punjab during 1993 and 1997 elections. As the Deputy Opposition Leader and Speaker of the Provincial Assembly he displayed outstanding qualities of political leadership. We take due cognisance of his meaningfully productive and fruitful contributions which he so selflessly made in connection with the denationalisation and restoration of his alma mater to its former glory.

GROUP CAPTAIN (RETD.) CECIL CHAUDHRY, the Principal of St. Anthony's School and College and a decorate war hero, is the recipient of the Sitara-e-Jurat and the Sitara-e-Basalat for his service in the Pakistan Air Force.

MOHAMMAD MIAN SOOMRO, the current Chairman of the Senate of the Islamic Republic of Pakistan. Previous positions include Governor of Sindh and Chairman of Pakistan Banks Association. He is a distinguished banker.

TARIQ AZIZ, the Secretary of the National Security Council was the former Principal Secretary to the Chief Executive/President, Secretary Narcotics Control, Additional Secretary Ministry of Environment, Member C.B.R & Commissioner Income Tax.

M. MEHBOOB AHMAD, Retd. Chief Justice of the Federal Shariat Court of Pakistan and Lahore High Court.

AHMAD SAEED, the Ex-Chairman of Pakistan International Airlines is also the Director of the family business, Service Group of Industries. He applied his sound business acumen to rebuild PIA.

JAMSHEED K.A. MARKER, Retd. President of the UN Security Council and has been Pakistan's Ambassador to 19 nations during his outstanding career as a diplomat. As the UN Secretary General’s Special Representative to East Timor, he negotiated the peace process.
KHUSHNOOD AKHTAR LASHARI, the Additional Chief Secretary of the Punjab has served the Punjab Government as Secretary Education, Transport, Tourism, S & GAD. He was Chairman of the Chief Minister's Inspection Team, Director of the Civil Services Academy and Resident Director of the Lahore Arts Council.

Dr. M.S. HABIB, the owner of a company, Barrett Hodgson, which does about $20 million a year business in Canada, U.K., and Pakistan. Hailing from Faisalabad, his father sent him to the best college in the Punjab because of his vision for his son, which the son has achieved.

ABDUL MAJEED, is the Chairman of, Associated Textile Consultants (Pvt) Ltd., National Foods Ltd., Associated Textile Engineering (Pvt) Ltd., Precision Rubber Products Ltd. and Pakistan Card Clothing Co. (Pvt) Ltd.

HAFEEZ AKHTAR RANDHAWA, recently retired as the Chief Secretary of the Punjab, an office he held twice during his career in the Civil Service. Some of the other offices held by him were Federal Secretary Housing & Works, Federal Secretary Food, Agriculture and Livestock, Secretary Home Department, Govt of the Punjab & Commissioner of Faisalabad.

SARDAR FAROOQ AHMAD KHAN LEGHARI, was elected President of Pakistan in 1993 and is now the Chairman of the Millat Party. He has served Pakistan as a Civil Servant, a Federal Minister entrusted with varied portfolios and as Leader of the Opposition.

ILYAS M. CHAUDHRY, is the Chairman of Haleeb Foods Ltd. And he has been an active leader in the Lahore Chamber of Commerce & Industry and in several major trade association centres.

CHAUDHRY SHUJAAT HUSSAIN, has been the Prime Minister of Pakistan after serving in number of prominent positions. He is currently the President of PML (Ruling Party).

LORD SWARJ PAUL OF MARYLEBONE, is the founder of the Caparo Group, the largest family-owned business in Britain. He has also served the business community in Britain as the President of the U.K. Steel Producers Association. Lord Paul was at FC College from 1945 - 47 from where he completed his intermediate studies. His personal creed is, "It is better to be a model than a missionary."

INDER KUMAR GUJRAL, led India as the Prime Minister during the 50th year of its independence. He has contributed much to improve the relations between India and Pakistan, to reform the aging institutions of government and to promote pro-growth economic policies. He has also served as Union Minister of State holding different portfolios in the Ministries of Communications and Parliamentary Affairs, Information and broadcasting, Works and Housing, Planning and External Affairs.
Forman Christian College is establishing a strong communication network for Formanites all over the world to share news and information about the college. We invite Formanites to promote the idea of fellowship, to raise funds and to lead Forman Christian College towards its future growth and development.

**Directors and Officers of Formanite Alumni Association**

- Mr. Ahmed Saeed (President)
  Director of Service Group of Industries
- Mr. Abdul Majeed (Vice President)
  Chairman National Foods
- Mr. M. S. Babar (Secretary)
  Advocate
- Mr. Parvez A. Shahid (Treasurer)
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  Former Chief Secretary Gov't of the Punjab
- Gp. Capt. (R) Cecil Chaudhry (Member Executive Committee)
  Principal of St. Anthony's School & College
- Mr. Muneeb Khan (Member Executive Committee)
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- Ch. Parvez Elahi (Honorary Director)
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- Mr. Jamsheed K.A. Marker (Honorary Director)
  Retired President of the UN Security Council & Ambassador

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