## Bachelor of Clinical Health Sciences

# Clinical Associate

# Bachelor of Clinical Health Sciences – Clinical Associate

**MISSION STATEMENT**

*The **Bachelor of Clinical Health Sciences program** at Springfield Research University is dedicated to training compassionate, competent, and patient-centered healthcare professionals. Our mission is to equip students with the knowledge, clinical skills, and ethical foundation necessary for collaborative practice in diverse healthcare settings. Through rigorous academic coursework, hands-on clinical experiences, and a commitment to lifelong learning, we prepare graduates to provide high-quality medical care, promote wellness, and address the evolving healthcare needs of our communities.*

At Springfield Research University, our **Bachelor of Clinical Health Sciences program** is dedicated to preparing students for successful careers in the dynamic field of healthcare. Our mission rests on three fundamental pillars:

1. **Academic Excellence:**
    - We uphold rigorous standards, fostering critical thinking and intellectual growth.
    - Through engaging coursework, practical training, and evidence-based practice, we empower students to excel in the complex world of clinical health sciences.
    - Students gain a solid foundation in anatomy, physiology, clinical assessment, and patient care.
2. **Cutting-Edge Research:**
    - Our faculty and students actively contribute to advancing healthcare practice.
    - By addressing real-world challenges, exploring innovative treatment modalities, and shaping clinical guidelines, we drive positive change within the field.
    - Students engage in research projects, clinical trials, and evidence synthesis, enhancing their ability to provide evidence-based care.
3. **Societal Impact:**
    - We recognize our responsibility to society.
    - Our graduates are not only skilled clinicians but also ethical leaders who advocate for patient well-being, health promotion, and community health.
    - We empower them to make meaningful contributions to individual lives and public health, promoting physical well-being and quality of life.

The Bachelor of Clinical Health Sciences program prepares you to elicit medical histories, conduct physical examinations, order laboratory and radiological testing, diagnose common illnesses, determine treatment, provide medical advice, counsel and educate patients, promote wellness and disease prevention, assist in surgery, and perform casting and suturing.

Duties of clinical health science professionals vary depending on the specialization and healthcare setting in which they practice. Graduates can pursue careers in specialized areas such as orthopedics, cardiology, family practice, and neuromedicine ICU. Clinical rotations

(internships) during students' last year provide the opportunity to explore these specialized disciplines, including:

- ***Orthopedic Clinical Associate****: Working in hospitals, clinics, and rehabilitation centers to support orthopedic surgeons and healthcare providers in diagnosing, treating, and rehabilitating musculoskeletal conditions.*
- ***Cardiology Clinical Associate****: Assisting cardiologists in cardiology departments and specialized clinics with diagnostic tests, monitoring patients, and providing comprehensive cardiovascular care.*
- ***Family Practice Clinical Associate****: Delivering primary care services in family practice settings, community health centers, and clinics, managing common illnesses and preventive care.*
- ***Neuromedicine ICU Clinical Associate****: Providing critical care in intensive care units (ICUs) and neurology departments, managing complex neurological conditions and supporting neurology specialists.*

These specialized roles ensure that graduates are well-prepared to meet the specific healthcare needs of their communities, enhancing the overall quality of healthcare delivery.

Obtaining the skills and knowledge to practice as a clinical health science professional is a complex process. A carefully planned course of study has been developed to offer a balance of didactic and clinical knowledge. A significant component of the educational process is the socialization of the student to the character, performance, and role of a provider of medical care. The evaluation of the student's adaptation to this role depends on the experienced judgment of individual faculty members. It is important to recognize that these subjective judgments may transcend or be independent of traditional paper and pencil tests and other similar objective measures of academic performance. Clinical health sciences education involves instruction from practicing clinicians with unpredictable schedules.

## CLINICAL ASSOCIATE: SCOPE OF PRACTICE

The Bachelor of Clinical Health Sciences (BCHS) program at Springfield Research University trains Clinical Associates over five years. Graduates must register with the Eswatini Medical and Dental Council (EMDC) in Eswatini and/or relevant Councils in their country of origin to practice within a defined scope.

### Role and Functionality

Clinical Associates are essential healthcare team members, equipped to perform effectively in diverse settings under a qualified medical practitioner's supervision. Their roles span public and private hospitals, clinics, non-governmental organizations, and private practices. They are not independent professionals and must consult their supervising doctor in uncertain situations, emphasizing teamwork and communication.

## Practice and Responsibilities

Clinical Associates provide medical services within their education, training, and experience, delegated by their supervising doctor. Acting as agents of their supervising doctors, they execute various healthcare activities, including diagnostic, therapeutic, and medical services. Although they cannot establish private practices, they offer medical care under supervision in public and private healthcare settings.

## Scope of Practice Focus Areas

- **Emergency Care:** Handling urgent and emergency medical situations.
- **Outpatient Care:** Managing patients in outpatient settings.
- **Inpatient Care:** Overseeing patient care in hospital wards.
- **Skilled Procedures:** Performing various routine medical procedures.

## Medical Services

Clinical Associates are trained to:

- Take patient histories and perform physical examinations.
- Order and conduct diagnostic and therapeutic procedures.
- Interpret findings and formulate diagnoses for common and emergency conditions.
- Develop and implement treatment plans.
- Monitor the effectiveness of therapeutic interventions.
- Assist in surgical operations.
- Provide counseling and education to meet patient needs.
- Make appropriate referrals.

While functioning primarily in a generalist capacity, Clinical Associates can pursue advanced medical practice in specific areas with additional training (e.g., emergency medicine, obstetrics, pediatrics, anesthesia, surgery, psychiatry).

## Employment Settings

Clinical Associates support doctors and healthcare teams in hospitals, clinics, and private practices in both rural and urban areas. They work closely with doctors, nurses, and other healthcare staff, significantly contributing to settings with high workloads such as district hospitals. Their presence is beneficial in community health centers, NGOs, private doctors' offices, and clinics.

## Supervision and Protocols

The scope of practice for Clinical Associates is guided by written clinical protocols required by employers. Continuous supervision is mandated but does not necessitate the supervising doctor's physical presence at all times. Each team must clearly define the Clinical Associate's

scope of practice, delegate tasks based on competency, ensure access to the supervising doctor, and implement performance evaluation processes. In cases where the Clinical Associate cannot independently make an assessment and plan, they must communicate gathered information to the supervising doctor for collaborative decision-making.

**Rationale for the Bachelor of Clinical Health Sciences**

The Bachelor of Clinical Health Sciences program at Springfield Research University is purposefully designed to prepare students for impactful careers in healthcare. Rooted in academic excellence, this program equips students with essential knowledge, practical skills, and clinical experience. By emphasizing evidence-based practice and patient-centered care, our graduates emerge as competent professionals poised to make a positive impact on health outcomes.

**National Needs (Eswatini):**

1. **Quantitative Expertise:**
    - Eswatini requires skilled clinical health science professionals who can navigate complex healthcare scenarios.
    - The program equips students with mathematical proficiency and critical thinking abilities to assess patient conditions effectively.
2. **Evidence-Based Practice:**
    - Graduates advocate for evidence-based decision-making, ensuring fairness and equitable treatment.
    - By enhancing clinical reasoning, they contribute to better patient outcomes.
3. **Policy and Practice:**
    - The program fosters critical thinking, enabling graduates to engage in research, policy formulation, and informed clinical decision-making at the national level.

**Regional Needs (SADC):**

1. **Harmonization of Practices:**
    - SADC member states share healthcare challenges.
    - The program aligns with SADC's goal of harmonizing clinical frameworks, promoting cooperation, and advancing patient care.
2. **Human Capital Development:**
    - Clinical health science professionals play a pivotal role in regional health systems.
    - The program contributes to building a skilled workforce capable of addressing cross-border health complexities.
3. **Healthcare Stability:**
    - SADC's prosperity relies on informed healthcare practices.
    - Our graduates contribute to maintaining health system order, resolving health challenges, and fostering regional well-being.

**Purpose of the Program:**

1. **Clinical Leadership:**
    - The program educates ethical leaders who champion evidence-based practice, fairness, and patient-centered care.
    - Graduates not only assess patient data but also shape clinical policies and protocols.
2. **Cutting-Edge Research:**
    - Students engage in specialized clinical research, addressing contemporary health issues.
    - Their findings contribute to evidence-based practice, risk assessment, and practical solutions.
3. **Community Impact:**
    - The program prepares graduates to drive positive change through clinical practice, patient management, and health system analysis.

## PROGRAM GOALS

- **Medical Knowledge:** Graduates will demonstrate core medical knowledge of established and evolving biomedical and clinical sciences and apply this knowledge to patient care.
- **Interpersonal and Communication Skills:** Graduates will demonstrate interpersonal and communication skills that result in effective information exchange with patients, families, physicians, and other members of the healthcare team.
- **Patient Care:** Graduates will provide effective, safe, high-quality, and equitable patient care in diverse settings and across the lifespan.
- **Professionalism:** Graduates will practice with integrity, ethical and legal responsibility, and sensitivity to diverse patient populations.
- **Practice-based Learning and Improvement:** Graduates will critically analyze their practice experiences with Evidence-Based Medicine (EBM) and quality assurance processes to improve patient care.
- **Systems-based Practice:** Graduates will demonstrate awareness of and responsiveness to healthcare systems while keeping the patient at the center of cost-effective, safe care.

## ENTRY REQUIREMENTS

The student must have 6 credits in SGCSE/GCE/IGCSE O' Level including a pass with Grade C or better in English Language and at least four other subjects, special: **A-Level**: Mathematics, and any other two from Biology, Chemistry, Combined Science, Physics, Physical Science and/or Human Social Biology. Faculty may set mature entry requirements subject to approval by Senate.

### Health Care Experience

While health care experience is not an absolute requirement for admission, the program faculty highly suggest that candidates volunteer in hospitals, nursing homes, hospice and/or health care facilities, as applicable. In addition, shadowing health care professionals (clinical specialists, MDs) in clinical arenas is highly suggested as a means of observing the role of clinical specialists and other members of the health care team in providing care to patients.

### Student Employment and Co-curricular Activities

Many students work during the first two years of the program. Most of these students find that balancing academics, co-curricular activities, and working 8-10 hours/week is possible. Nonetheless, attention must always remain focused on the academic expectations of the program, which require students to maintain a minimum term and cumulative GPA of 3.0 throughout the program. Given the rigorous program of study, students in the professional phase of the program are strongly advised to meet with their academic advisor to discuss their participation in outside employment and co-curricular activities. Students in the professional phase, including clinical rotations, must ensure that employment and/or co-curricular activities do not interfere with academic preparation, performance, clinical responsibilities, and scheduling as per clinical affiliates and program requirements. Outside commitments that are not managed effectively can dramatically affect successful progression within the program and on clinical

rotations. Given the rapidly changing environment in day-to-day clinical activities and responsibilities, patient cases and/or clinical responsibilities must be given paramount priority.

### Service Work

Students participating in clinical service work are responsible for ensuring that those with whom they come into contact understand their role as clinical health science students. At no time should students, participating in clinical service work, represent themselves, take the responsibility of, or the place, of qualified staff. The exception is when the student is under the guidance and direction of their instructor/preceptor for that given rotation block in which the student's status must be disclosed. Students are never to serve as substitutions for regular staff and/or health professionals.

### Plan of Study

The clinical health sciences major is offered as a Bachelor's degree program, which enables students to earn a bachelor's degree in five years. The curriculum is divided into a professional phase (years 1 and 2), which includes coursework in the basic sciences, mathematics, and general education; and a professional phase (years 3 and 4), and a specialisation phase (year 5), which features didactic medical education and culminates in clinical rotations in which students apply their medical knowledge in a series of rotations through various disciplines of medicine.

### Technical Standards

Students in the clinical health sciences program must possess certain capabilities and skills, with or without reasonable accommodation. These include the intellectual ability to learn, integrate, analyze, and synthesize data. They must have a functional use, with or without accommodation, of the senses of vision, hearing, and equilibrium.

### Graduate Outcomes/Competencies

The clinical health sciences program has outlined functions and tasks for performing a range of skills you are expected to master as a graduate of the program.

| **BCHS Exit Level Outcome** | **Associated Assessment Criteria** |
|---|---|
| 1. Conduct patient-centred consultations across all ages in a district hospital. | ▪ Identify patient needs and problems through effective listening.<br>▪ Take a thorough and relevant history.<br>▪ Perform accurate and appropriate physical examinations.<br>▪ Utilize diagnostic tools effectively.<br>▪ Ensure continuity of care by arranging follow-ups and reviews. |
| 2. Apply clinical reasoning in patient assessment and management. | ▪ Identify high-risk situations and conditions promptly and take appropriate action.<br>▪ Formulate differential diagnoses from obtained information. |

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|---|---|
| | ▪ Collaborate with patients throughout consultations, including initial and follow-up assessments, discussions of differential diagnoses, and options for diagnostic and therapeutic measures.<br>▪ Make assessments based on gathered information (history, physical examination, investigation results).<br>▪ Contextualize assessments within the bio-psycho-social model, incorporating preventive, promotive, curative, and rehabilitative aspects.<br>▪ Develop management plans based on assessments, including necessary referrals (e.g., rehabilitation).<br>▪ Continuously review and adjust assessment and management plans with the multidisciplinary medical team.<br>▪ Guide special investigations based on information needed to confirm or reject hypotheses.<br>▪ Consider cost-effectiveness in assessment and management decisions.<br>▪ Interpret results of relevant special investigations in common conditions in consultation with the supervising doctor.<br>▪ Present and justify the assessment and management plan to the supervising doctor based on obtained information. |
| 3. Perform investigative and therapeutic procedures suitable for a district hospital. | ▪ Explain and describe procedures in both lay and medical terms.<br>▪ Identify indications and contraindications for specific procedures.<br>▪ Demonstrate the ability to prepare for procedures, including patient preparation.<br>▪ Competently perform the procedure.<br>▪ Explain possible complications of the procedure.<br>▪ Provide follow-up and safety-netting instructions after the procedure. |
| 4. Prescribe appropriate medications within scope of practice. | ▪ Demonstrate knowledge of basic pharmacology.<br>▪ Apply standard treatment guidelines and the Essential Drug List for district hospitals, including indications, contraindications, side effects, and drug interactions in common and important conditions.<br>▪ Write prescriptions correctly, including dosage and frequency, to comply with legal requirements and scope of practice.<br>▪ Explain prescriptions to patients, promoting drug literacy and adherence. - Consider patients' use of over-the-counter, traditional, complementary, and alternative medicines.<br>▪ Demonstrate knowledge of non-pharmacological therapies.<br>▪ Show competence in administering and dispensing medication. |
| 5. Provide emergency care. | ▪ Promptly identify, evaluate, and act on potentially life-threatening conditions in patients.<br>▪ Manage and refer emergency conditions appropriately. |
| 6. Facilitate communication and provide basic counselling. | ▪ Identify patient needs and problems through effective listening.<br>▪ Share health information in culturally and linguistically appropriate terms.<br>▪ Provide an appropriate amount and level of information. |

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| | ▪ Foster a suitable environment for communication with patients and/or families.<br>▪ Facilitate patient feedback and questions.<br>▪ Ensure confidentiality.<br>▪ Demonstrate basic counselling skills to address patient needs.<br>▪ Explore appropriate solutions.<br>▪ Facilitate mutual decision-making.<br>▪ Provide continual support and follow-up. |
| 7. Function effectively as a member of the health care team. | ▪ Demonstrate understanding of the roles, functions, and relationships of all district hospital team members.<br>▪ Enhance team functioning through appropriate attitude and behaviour as a team member or substitute team leader.<br>▪ Communicate clinical information from patients clearly and concisely to other team members, especially doctors.<br>▪ Appropriately hand over patient reports to colleagues. |
| 8. Produce and maintain accurate clinical records. | ▪ Ensure patient records and medico-legal forms are accurate and legible.<br>▪ Respond to and complete patient referral letters appropriately.<br>▪ Accurately complete patient statistics. |
| 9. Practice ethically. | ▪ Explain the role and function of a clinical associate to patients.<br>▪ Apply basic ethical principles.<br>▪ Recognize and manage ethical problems appropriately, referring when necessary.<br>▪ Comply with statutory and professional obligations.<br>▪ Demonstrate appropriate and sensitive attitudes towards patients, families, communities, and colleagues.<br>▪ Show reliability in work situations. |
| 10. Engage in continuous learning in clinical practice. | ▪ Identify professional strengths and weaknesses by reflecting on clinical practice and reviewing patient medical records and/or the success or failure of medical interventions.<br>▪ Continuously improve clinical practice based on identified needs through self-directed learning. |
| 11. Integrate family, community, and health system understanding into practice. | ▪ Assess and manage patients within the context of their family, community, social, and work environments.<br>▪ Draw up an ecomap and genogram for families when appropriate.<br>▪ Use knowledge of the local district health system to inform practice, including referrals, follow-up, and interaction with other team members and resource persons and organisations.<br>▪ Demonstrate awareness of and appropriate involvement in local community-oriented primary care, including participation in community-based projects.<br>▪ Participate in quality improvement activities to demonstrate understanding of the quality improvement cycle or process.<br>▪ Understand and appropriately address the principles and practice of comprehensive primary health care affecting individuals, families, and communities, including aspects such as water, sanitation, nutrition, housing, pollution, personal health care, and health programmes. |

## CLINICAL ROTATIONS

Clinical rotations include a five-week experience in various disciplines of clinical health sciences, providing students with the opportunity to apply the basic principles of medicine to hospital-based and ambulatory patient care settings. Students are assigned to a primary preceptor (clinical specialist/physician) and are exposed to a wide variety of acute and chronic medical problems. The emphasis is on data gathering, physical examination, differential diagnosis, patient management, maintenance of medical records, performance of diagnostic and therapeutic procedures, and the provision of patient education and counseling. Mandatory rotations are in the fields of orthopedics, cardiology, family practice, and neuromedicine ICU. Students also select one elective rotation, which enables them to customize their experience according to their medical area of interest.

The clinical rotations represent the integration and combination of the didactic and clinical phases of the clinical health sciences program. A great deal of planning has gone into creating a learning environment that will allow the student to obtain the high-level skills required for practice as a clinical health specialist. The affiliates (hospitals and office-practices) are busy places offering a variety of services. It is the responsibility of the student to explore and learn as much as possible during this very important year. You will be assigned a preceptor for each rotation by the program. This will generally be a physician, clinical specialist, or nurse practitioner who is responsible for your actions and educational experience. In general, the student is expected to participate in each and every aspect of the department or office where assigned.

The clinical health sciences program is fortunate to have the support of the local and neighboring medical communities for providing clinical sites offering a wide array of clinical experiences. Program faculty provides rotation assignments for all students. The program cannot assure the student assignment to a clinical affiliate within the immediate Springfield Research University area or other desired area. Several of these sites are located some distance from the SRU campus. The clinical health sciences program makes every attempt to assist the student in finding suitable housing. However, ultimately the responsibility for housing, travel, and food are the student's responsibility.

## CAREER PROGRESSION

The career progression for graduates of the Bachelor of Clinical Health Sciences program can be quite promising, with opportunities for advancement in various specialized fields. Here's a potential career pathway for each specialization:

### Orthopedic Clinical Specialist

1. **Entry-Level Position**: Orthopedic Technician or Assistant
2. **Mid-Level Position**: Orthopedic Nurse or Orthopedic Clinical Officer
3. **Advanced Position**: Orthopedic Specialist or Orthopedic Surgeon Assistant
4. **Leadership Role**: Orthopedic Department Manager or Clinical Coordinator
5. **Further Education**: Pursue a Master's or Doctorate in Orthopedic Medicine or Surgery

### Cardiology Clinical Specialist

1. **Entry-Level Position**: Cardiology Technician or Assistant

2. **Mid-Level Position**: Cardiology Nurse or Cardiology Clinical Officer
3. **Advanced Position**: Cardiology Specialist or Cardiology Technologist
4. **Leadership Role**: Cardiology Department Manager or Clinical Coordinator
5. **Further Education**: Pursue a Master's or Doctorate in Cardiology or Cardiothoracic Medicine

**Family Practice Clinical Specialist**

1. **Entry-Level Position**: Family Practice Assistant or Nurse
2. **Mid-Level Position**: Family Practice Clinical Officer or Primary Care Nurse
3. **Advanced Position**: Family Practice Specialist or Primary Care Physician Assistant
4. **Leadership Role**: Family Practice Department Manager or Clinical Coordinator
5. **Further Education**: Pursue a Master's or Doctorate in Family Medicine or General Practice

**Neuromedicine ICU Clinical Specialist**

1. **Entry-Level Position**: ICU Technician or Assistant
2. **Mid-Level Position**: ICU Nurse or Neuromedicine Clinical Officer
3. **Advanced Position**: Neuromedicine Specialist or Neuro ICU Technologist
4. **Leadership Role**: ICU Department Manager or Clinical Coordinator
5. **Further Education**: Pursue a Master's or Doctorate in Neurology or Neurocritical Care

These pathways illustrate the potential for growth and specialization within the healthcare field. Graduates can start in entry-level positions and progress to more advanced roles, taking on leadership positions and pursuing further education to enhance their expertise and career prospects.

**ASSESSMENT**

1. **Clinical Competence Assessment:**
    - **Coursework:** Rigorous coursework serves as the foundation for assessment. Students engage in assignments, quizzes, and active participation in class. This assesses their understanding of anatomical, physiological, and clinical concepts relevant to physician assistant practice.
    - **Clinical Skills Evaluation:** Practical assessments focus on hands-on skills, patient interactions, and clinical reasoning. Students demonstrate their ability to apply theoretical knowledge in real-world scenarios.
2. **Research and Evidence-Based Practice:**

- **Research Projects:** Through research projects, students explore specialized topics within physician assistant studies. They analyze patient data, critically evaluate evidence, and present well-reasoned arguments. This enhances their research and analytical abilities.
- **Evidence-Based Practice Assignments:** Students learn to integrate research findings into clinical decision-making. They assess the effectiveness of interventions based on current evidence.

3. **Problem-Solving and Critical Thinking:**
   - **Case Studies:** Students analyze complex clinical cases, identifying patient needs, formulating treatment plans, and evaluating outcomes. This sharpens their problem-solving skills.
   - **Clinical Simulations:** Practical assessments simulate real-world scenarios, allowing students to apply critical thinking to patient management.
4. **Professionalism and Communication:**
   - **Patient Interaction Assessments:** Students demonstrate effective communication, empathy, and professionalism during patient interactions.
   - **Teamwork and Leadership:** Collaborative assessments emphasize teamwork, leadership, and interdisciplinary communication.
5. **Community Engagement and Practical Experience:**
   - **Clinical Placements:** Students participate in supervised clinical placements, applying their knowledge and skills in diverse healthcare settings.
   - **Community Projects:** Engaging with community health initiatives allows students to make a positive impact beyond the classroom.

Our holistic assessment approach ensures that graduates are well-prepared to excel as skilled and compassionate physician assistants, contributing to improved health outcomes and quality of life.

### The Bachelor's Degree in Clinical Health Sciences

The Bachelor's degree program in Clinical Health Sciences at Springfield Research University is designed to equip students with the skills and knowledge necessary for a successful career in this dynamic field. Here are the key features of our program:

1. **Duration:**
   - The program spans **five years** for full-time students or **seven years** for part-time students, including an industrial attachment or internship period.
2. **Semester Structure:**
   - Each academic year consists of two semesters.
   - **Semester Duration:** Each semester runs for 20 weeks.
     - **Orientation Week:** One week dedicated to orientation.

- **Teaching Weeks:** A minimum of 14 weeks for instruction.
- **Mid-Semester Break:** A one-week break for students.
- **Examination Period:** Two weeks for final exams.
- **Results Processing:** Two weeks allocated for marking and result processing.

Our program ensures a rigorous academic experience while allowing flexibility for part-time students. Students engage in hands-on learning, theoretical coursework, and practical projects, preparing them for the exciting challenges of the Health and Medical industry.

**Special Departmental Regulations**

1. **Course Completion Requirements:**
    - All Core, Prerequisite, Required, General, and Elective courses within the degree program are compulsory. Students must pass these courses with a minimum grade of 50% to graduate.
    - However, during the fourth and fifth years, all courses must be passed with a minimum grade of 60% (equivalent to a CGPA of 3.00) to qualify for graduation.
2. **Optional Courses:**
    - Optional courses do not contribute to the final grade. Their marks are excluded from the computation of the overall grade.
3. **Externalization of Courses:**
    - All courses within the degree programs must be completed internally. Externalization is not permitted.
4. **Quality Control and Evaluation:**
    - Regular academic audits and reviews occur every four years, overseen by external moderators. Internal program evaluation is ongoing.
5. **Competence and Preparation:**
    - The courses offered in the Bachelor of Clinical Health Sciences program provide adequate competences, preparing students for professional practice at the required academic level.
6. **Core and Prerequisite Courses:**
    - Students must pass all Core and Prerequisite courses with a minimum grade of 50% before progressing to the next level or enrolling in additional courses.

**Degree Award and Classification**

- Upon successful completion of all Core, Required, and Education courses, as well as meeting the program requirements, a student will be awarded the degree of Bachelor of Clinical Health Sciences at the end of the final year.

- The normal classification of a bachelor's degree is determined based on the academic performance during the fourth and fifth years of study.

**Rationale to Course Numbering**

At Springfield Research University, we meticulously design our Bachelor of Clinical Health Sciences curriculum to empower students with the knowledge and skills needed to thrive in this dynamic field. Our course numbering system serves as a roadmap, guiding students through their academic journey:

- **100-level courses** introduce foundational concepts.
- **200-level courses** build on those foundations.
- **300-level courses** explore more specialized topics.
- **400-level courses** are advanced and often include research or project components.
- **500-level courses** are designed for professional practice, advanced clinical training, and capstone projects.

Let's delve into the reasons behind our thoughtful approach:

1. **Logical Progression**: Our course numbers reflect a logical progression. Foundational concepts begin with the "100" series, followed by deeper explorations in the "200" and "300" levels. Advanced topics and research opportunities reside in the "400" series, and professional practice components are covered in the "500" series.
2. **Prerequisites and Coherence**: Clear numbering helps students understand prerequisites and co-requisites. For instance, a 200-level course assumes knowledge from related 100-level courses, ensuring a coherent learning experience.
3. **Specialization and Depth**: As students advance, higher-level courses delve into specialized areas such as orthopedic techniques, cardiology procedures, family practice, and neuromedicine. The numbering system communicates this depth of study.
4. **Alignment with Program Goals**: Each course number aligns with our program's learning outcomes. Whether it's mastering anatomy or diving into specialized clinical practices, students can track their progress.
5. **Transferability**: Consistent numbering facilitates credit transfer between institutions, supporting seamless academic mobility.

In summary, our course numbering isn't just a sequence—it's a deliberate framework that enhances learning, fosters curiosity, and prepares our students for impactful careers in the Health and Medical industry.

**Bachelor of Clinical Health Sciences Courses:**

**100-Level Courses:**

- CHS 101: Introduction to Clinical Health Sciences

- CHS 110: Anatomy and Physiology
- CHS 120: Medical Terminology and Documentation

**200-Level Courses:**

- CHS 201: Clinical Assessment and Diagnosis
- CHS 210: Pharmacology and Medication Management
- CHS 220: Pathophysiology and Disease Processes

**300-Level Courses:**

- CHS 301: Primary Care and Preventive Medicine
- CHS 310: Orthopedic Techniques and Procedures
- CHS 320: Cardiology Procedures and Patient Management

**400-Level Courses:**

- CHS 401: Advanced Clinical Practice and Specialties
- CHS 410: Evidence-Based Medicine and Research
- CHS 420: Professional Ethics and Patient Care

**500-Level Courses:**

- CHS 501: Advanced Professional Practice
- CHS 510: Capstone Project in Clinical Health Sciences
- CHS 520: Leadership and Management in Healthcare

**Credit Transfer, Accumulation, and Distribution of Notional Hours**

The Bachelor of Clinical Health Sciences is a five (5) year program. The student is expected to accumulate 620 credit points to be considered to have met the requirements of the Bachelor of Clinical Health Sciences and must pass each module by at least 50%.

- Level 1 = minimum of 124 credits (1240 notional hours of study)
- Level 2 = minimum of 124 credits (1240 notional hours of study)
- Level 3 = minimum of 124 credits (1240 notional hours of study)
- Level 4 = minimum of 124 credits (1240 notional hours of study)
- Level 5 = minimum of 124 credits (1240 notional hours of study)

**TOTAL** credit points 620 (6200 notional hours of study)

**Credit Transfer and Accumulation**

1. Credits are derived from the engagement of students in learning activities during lectures, seminars, tutorials, micro or macro field trips, directed and self-directed learning, and writing examination tests and assignments.

2. Modules from the health and medical faculty are worth 12 credits. Lecture attendance is compulsory. Students who attend less than 80% of lessons will not be allowed to sit for their sessional examinations.

**Weighting**

The degree class shall be based on weighting the results from part 1, 2, 3, 4, and 5. The Degree weighting shall be as follows:

- Level 1: 15%
- Level 2: 15%
- Level 3: 20%
- Level 4: 25%
- Level 5: 25%

**Distribution of Notional Hours**

| Module | Lecture Hrs | Tutorials/ Seminars | Self-Directed Study | Assignment Tests/Exams | Notional Hrs | Credits |
|---|---|---|---|---|---|---|
| CHS000 | 50 | 20 | 25 | 25 | 120 | 12 |
| PROJECT | 0 | 0 | 40 | 100 | 140 | 14 |

**ASSESSMENT**

1. **Formative Assessment (30%):**
    - **Class Participation:** Actively engage in discussions, seminars, and practical activities. This ongoing feedback enhances learning during the course.
    - **Quizzes and Short Tests:** Regular assessments of specific anatomical, physiological, and clinical topics.
    - **Draft Assignments:** Receive feedback on early drafts of assignments, refining your work.
    - **Peer Review:** Collaborate with peers to review and improve each other's clinical reasoning and treatment plans.
2. **Summative Assessment (40%):**
    - **Final Examinations:** Comprehensive exams covering the entire program content, assessing theoretical knowledge and clinical application.
    - **End-of-Semester Papers:** Demonstrate analytical skills by critically evaluating research articles related to clinical health sciences.
    - **Oral Presentations:** Communicate effectively, presenting clinical cases, treatment approaches, and evidence-based recommendations.

3. **Continuous Assessment (30%):**
    - **Clinical Placement:** Engage in supervised clinical placements, applying theoretical knowledge to real patients. Assessments include patient interactions, treatment planning, and clinical reasoning.
    - **Assignments and Projects:** Regular tasks contribute to the overall grade, emphasizing practical skills and evidence-based practice.
    - **Attendance and Participation:** Actively engage in lectures, workshops, and community health initiatives.

These assessment methods align with our commitment to academic excellence and the development of competent and compassionate clinical health science professionals.

**Teaching Methods**

At Springfield Research University (SRU), we are committed to employing a diverse array of teaching methods to ensure a comprehensive and engaging learning experience for our students. Our teaching methods are carefully selected to align with the program's objectives and to meet the needs of our diverse student body. The following are the key teaching methods utilized across all SRU programs:

1. **Lectures:**
    - Lectures are used to introduce and explain key concepts, theories, and principles. They provide a structured and systematic approach to delivering content, allowing students to gain a solid foundation in their respective fields. Lectures are often supplemented with visual aids, multimedia presentations, and interactive elements to enhance understanding and engagement.
2. **Seminars:**
    - Seminars are interactive sessions that promote critical thinking and in-depth discussion on specific topics. Students are encouraged to actively participate, share their perspectives, and engage in debates. Seminars provide an opportunity for students to develop their analytical and communication skills.
3. **Workshops:**
    - Workshops are hands-on sessions that focus on practical skills and applications. These sessions allow students to engage in experiential learning, apply theoretical knowledge to real-world scenarios, and collaborate with peers on projects and activities. Workshops are designed to foster creativity, problem-solving, and teamwork.
4. **Problem-Based Learning (PBL):**
    - Problem-Based Learning is a student-centered approach that involves presenting students with complex, real-world problems to solve. Students work in small groups to research, discuss, and propose solutions, developing critical thinking and collaborative skills in the process. PBL encourages independent learning and active engagement.
5. **Case Studies:**

- Case studies are used to analyze real-life situations and decision-making processes. Students examine and discuss case studies to understand the context, identify key issues, and evaluate possible solutions. This method helps students develop their analytical and problem-solving abilities while relating theoretical concepts to practical situations.

6. **Clinical Practice:**
    - For programs that include a clinical component, such as Health and Medical Sciences, clinical practice is an integral part of the curriculum. Students gain hands-on experience in clinical settings, working under the supervision of qualified professionals. This method provides valuable opportunities for students to apply their knowledge, develop clinical skills, and gain insights into professional practice.
7. **Research Projects:**
    - Research projects are designed to cultivate a culture of inquiry and innovation. Students engage in independent or group research projects, exploring topics of interest and contributing to the body of knowledge in their field. Research projects develop students' research skills, critical thinking, and ability to communicate findings effectively.
8. **Online Learning:**
    - Online learning is incorporated to provide flexible and accessible education. SRU utilizes online platforms to deliver lectures, conduct discussions, and facilitate collaborative projects. Online learning allows students to access course materials, participate in virtual classrooms, and engage with peers and instructors remotely.
9. **Continuous Assessment:**
    - Continuous assessment methods, such as quizzes, assignments, and presentations, are used to monitor students' progress and provide ongoing feedback. These assessments help identify areas for improvement and ensure that students are meeting learning objectives throughout the course.
10. **Peer Learning:**
    - Peer learning encourages students to collaborate and learn from each other. Group projects, study groups, and peer review sessions provide opportunities for students to share knowledge, offer feedback, and support each other's learning journey.

At SRU, our commitment to employing diverse and effective teaching methods ensures that our students receive a well-rounded education that prepares them for success in their chosen fields. We continuously review and enhance our teaching practices to provide the best possible learning experience for our students.

**Delivery Methods**

At Springfield Research University (SRU), we utilize a variety of delivery methods to ensure that our educational programs are accessible, engaging, and effective. Our delivery methods

are designed to cater to the diverse needs of our students and to provide flexible learning opportunities. The following are the key delivery methods employed across all SRU programs:

1. **In-Person Delivery:**
    - **Classroom Lectures:** Traditional classroom lectures provide a structured and interactive environment where students can engage with instructors and peers. These sessions often include discussions, presentations, and multimedia resources to enhance learning.
    - **Laboratory Sessions:** For programs that require practical and experimental learning, laboratory sessions are conducted in specialized labs equipped with the necessary tools and equipment. These hands-on sessions allow students to apply theoretical knowledge in a controlled environment.
    - **Clinical Placements:** Health and Medical Sciences programs, including the Bachelor of Clinical Health Sciences, include clinical placements in hospitals, clinics, and healthcare facilities. These placements provide students with real-world experience under the supervision of qualified professionals.
2. **Online Delivery:**
    - **Virtual Classrooms:** Online platforms are used to deliver lectures, conduct discussions, and facilitate collaborative projects. Virtual classrooms enable students to access course materials, participate in live sessions, and engage with peers and instructors from remote locations.
    - **Recorded Lectures:** Recorded lectures are made available for students to access at their convenience. This flexible approach allows students to review and revisit course content as needed.
    - **Online Assessments:** Online assessments, including quizzes, assignments, and exams, are conducted through secure online platforms. These assessments provide timely feedback and help monitor students' progress.
3. **Blended Learning:**
    - **Hybrid Courses:** Blended learning combines in-person and online delivery methods to provide a flexible and comprehensive learning experience. Hybrid courses may involve alternating between classroom sessions and online activities.
    - **Flipped Classroom:** In the flipped classroom model, students access instructional content online before class and use in-person sessions for interactive, application-based activities. This approach encourages active learning and deeper engagement with the material.
4. **Independent Study:**
    - **Self-Paced Learning:** Self-paced learning allows students to progress through course materials at their own speed. This method is ideal for students who prefer to learn independently and manage their own schedules.
    - **Research Projects:** Independent research projects provide students with the opportunity to explore topics of interest, develop research skills, and contribute

to the body of knowledge in their field. Faculty advisors provide guidance and support throughout the research process.

5. **Collaborative Learning:**
    - **Group Projects:** Group projects foster teamwork and collaboration among students. These projects often involve problem-solving, research, and presentations, allowing students to learn from each other and develop interpersonal skills.
    - **Peer Review:** Peer review sessions encourage students to provide and receive constructive feedback on each other's work. This method promotes critical thinking, reflection, and improvement.
6. **Experiential Learning:**
    - **Internships and Work Placements:** Internships and work placements provide students with practical experience in their chosen field. These opportunities allow students to apply their knowledge in real-world settings, develop professional skills, and build industry connections.
    - **Field Trips and Excursions:** Field trips and excursions offer experiential learning opportunities outside the classroom. These activities provide students with firsthand exposure to relevant sites, industries, and practices.
7. **Continuous Assessment:**
    - **Formative Assessments:** Formative assessments, such as quizzes, assignments, and in-class activities, provide ongoing feedback to students and help track their progress. These assessments are designed to support learning and identify areas for improvement.
    - **Summative Assessments:** Summative assessments, including final exams, projects, and presentations, evaluate students' overall performance and mastery of course content.

At SRU, our diverse delivery methods ensure that students receive a well-rounded and flexible education that caters to their individual learning preferences. We are committed to continuously enhancing our delivery methods to provide the best possible learning experience for our students.

# CURRICULUM

**Clinical Health Sciences, Bachelor's degree, typical course sequence**

**Year 1 Semester 1**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS100 | Human Anatomy and Physiology I | 80 | 30 | 12 |
| CHS101 | Natural Science Inquiry Perspective: General Analytical Chemistry I and Lab | 60 | 60 | 12 |
| CHS102 | Mathematics Perspective A: Applied Calculus | 120 | 0 | 12 |
| CHS103 | Ethical Perspectives | 120 | 0 | 12 |
| CHS104 | Population Health and Society | 120 | 0 | 12 |

| | | | | |
|---|---|---|---|---|
| CHS105 | Professional Health Principles | 120 | 0 | 12 |
| | Total | | | 72 |

**Year 1 Semester 2**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS106 | Human Anatomy and Physiology II | 80 | 30 | 12 |
| CHS107 | Sociology for Medical Professionals | 120 | 0 | 12 |
| CHS108 | Scientific Principle Perspective: General Analytical Chemistry II and Lab | 60 | 60 | 12 |
| CHS109 | Culture, Diversity and Health | 120 | 0 | 12 |
| CHS110 | Communication for Academic Purposes | 120 | 0 | 12 |
| CHS111 | Evidence-Based Practice | 120 | 0 | 12 |
| | Total | | | 72 |

**Year 2 Semester 3**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS212 | Biochemistry for Health Services | 80 | 30 | 12 |
| CHS213 | Pathophysiology I | 60 | 60 | 12 |
| CHS214 | Research Methods | 120 | 0 | 12 |
| CHS215 | Clinical Microbiology | 60 | 60 | 12 |
| CHS216 | Communication for Professional Purposes | 120 | 0 | 12 |
| CHS217 | Pharmacology I | 120 | 0 | 12 |
| | Total | | | 72 |

**Year 2 Semester 4**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS218 | Mathematics Perspective B: Introduction to Statistics I | 120 | 0 | 12 |
| CHS219 | Pathophysiology II | 60 | 60 | 12 |
| CHS220 | History and Physical Diagnosis I | 60 | 60 | 12 |
| CHS221 | Introduction to Digitization | 120 | 0 | 12 |
| CHS222 | Pharmacology II | 60 | 60 | 12 |
| CHS223 | Healthcare Policy and Law | 120 | 0 | 12 |
| | Total | | | 72 |

**Year 3 Semester 5**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS224 | Radiology | 60 | 60 | 12 |
| CHS225 | Clinical Genetics | 60 | 60 | 12 |
| CHS226 | Clinical Medicine I | 60 | 60 | 12 |
| CHS227 | History and Physical Diagnosis II | 60 | 60 | 12 |
| CHS228 | Pharmacology III | 60 | 60 | 12 |
| CHS230 | Procedural Clinical Skills | 60 | 60 | 12 |
| | Total | | | 72 |

**Year 3 Semester 6**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS331 | Clinical Lab Medicine | 60 | 60 | 12 |
| CHS332 | Diagnostic Imaging | 60 | 60 | 12 |
| CHS333 | Advanced Gross Anatomy | 60 | 60 | 12 |
| CHS334 | Clinical Medicine III | 60 | 60 | 12 |
| CHS335 | Hospital Practice | 60 | 60 | 12 |

| | | | | |
|---|---|---|---|---|
| CHS336 | Society and Behavioral Medicine | 110 | 10 | 12 |
| | Total | | | 72 |

**Year 4 Semester 7**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS438 | Clinical Integration | 60 | 60 | 12 |
| CHS439 | Clinical Research Methods | 60 | 60 | 12 |
| CHS440 | Internal Medicine | 60 | 60 | 12 |
| CHS441 | Obstetrics and Gynecology | 60 | 60 | 12 |
| CHS442 | Professional Practice I | 10 | 110 | 12 |
| CHS443 | Graduate Project I | 0 | 120 | 12 |
| | Total | | | 72 |

**Year 4 Semester 8**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS444 | Emergency Medicine | 60 | 60 | 12 |
| CHS445 | Surgery | 60 | 60 | 12 |
| CHS446 | Orthopedics | 60 | 60 | 12 |
| CHS447 | Professional Practice II | 60 | 60 | 12 |
| CHS448 | Family Medicine | 60 | 60 | 12 |
| CHS449 | Graduate Project II | 0 | 120 | 12 |
| | Total | | | 72 |

**ORTHOPEDIC CLINICAL SPECIALISATION**

**Year 5 Semester 9**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS501 | Advanced Orthopedic Diagnosis | 60 | 60 | 12 |
| CHS502 | Musculoskeletal Imaging and Interpretation | 60 | 60 | 12 |
| CHS503 | Orthopedic Surgical Procedures | 60 | 60 | 12 |
| CHS504 | Rehabilitation Techniques and Therapies | 60 | 60 | 12 |
| CHS505 | Pediatric Orthopedics | 60 | 60 | 12 |
| CHS506 | Orthopedic Research and Evidence-Based Practice | 60 | 60 | 12 |
| | Total | | | 72 |

**Semester 10**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS507 | Trauma and Emergency Orthopedics | 60 | 60 | 12 |
| CHS508 | Joint Replacement and Arthroscopy | 60 | 60 | 12 |
| CHS509 | Orthopedic Pain Management | 60 | 60 | 12 |
| CHS510 | Sports Medicine and Injuries | 60 | 60 | 12 |
| CHS511 | Orthopedic Practice Management | 60 | 60 | 12 |
| CHS512 | Clinical Orthopedic Internship | 10 | 110 | 12 |
| | Total | | | 72 |

**CARDIOLOGY CLINICAL SPECIALISATION**

**Semester 9**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS521 | Advanced Cardiac Anatomy and Physiology | 60 | 60 | 12 |
| CHS522 | Cardiac Imaging and Diagnostics | 60 | 60 | 12 |

| | | | | |
|---|---|---|---|---|
| CHS523 | Interventional Cardiology Procedures | 60 | 60 | 12 |
| CHS524 | Management of Heart Failure | 60 | 60 | 12 |
| CHS525 | Pediatric Cardiology | 60 | 60 | 12 |
| CHS526 | Cardiology Research and Evidence-Based Practice | 60 | 60 | 12 |
| | Total | | | 72 |

**Semester 10**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS527 | Acute Coronary Syndromes | 60 | 60 | 12 |
| CHS528 | Electrophysiology and Arrhythmias | 60 | 60 | 12 |
| CHS529 | Cardiac Rehabilitation and Prevention | 60 | 60 | 12 |
| CHS530 | Cardiovascular Pharmacology | 60 | 60 | 12 |
| CHS531 | Cardiology Practice Management | 60 | 60 | 12 |
| CHS532 | Clinical Cardiology Internship | 10 | 110 | 12 |
| | Total | | | 72 |

**FAMILY PRACTICE CLINICAL SPECIALISATION**

**Semester 9**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS541 | Advanced Primary Care Management | 60 | 60 | 12 |
| CHS542 | Pediatric and Adolescent Health | 60 | 60 | 12 |
| CHS543 | Geriatric Medicine | 60 | 60 | 12 |
| CHS544 | Women's Health and Obstetrics | 60 | 60 | 12 |
| CHS545 | Chronic Disease Management | 60 | 60 | 12 |
| CHS546 | Family Practice Research and Evidence-Based Practice | 60 | 60 | 12 |
| | Total | | | 72 |

**Semester 10**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS547 | Behavioral and Mental Health in Primary Care | 60 | 60 | 12 |
| CHS548 | Preventive Medicine and Health Promotion | 60 | 60 | 12 |
| CHS549 | Community Health and Epidemiology | 60 | 60 | 12 |
| CHS550 | Emergency and Urgent Care in Family Practice | 60 | 60 | 12 |
| CHS551 | Family Practice Management | 60 | 60 | 12 |
| CHS552 | Clinical Family Practice Internship | 10 | 110 | 12 |
| | Total | | | 72 |

**NEUROMEDICINE ICU CLINICAL SPECIALISATION**

**Semester 9**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS561 | Advanced Neuroanatomy and Neurophysiology | 60 | 60 | 12 |
| CHS562 | Neuroimaging and Diagnostics | 60 | 60 | 12 |
| CHS563 | Neurocritical Care Management | 60 | 60 | 12 |
| CHS564 | Stroke and Cerebrovascular Disorders | 60 | 60 | 12 |
| CHS565 | Pediatric Neurology | 60 | 60 | 12 |

| | | | | |
|---|---|---|---|---|
| CHS566 | Neuromedicine Research and Evidence-Based Practice | 60 | 60 | 12 |
| | Total | | | 72 |

**Semester 10**

| Code | Course | Lectures | Practical | Credits |
|---|---|---|---|---|
| CHS567 | Traumatic Brain Injury Management | 60 | 60 | 12 |
| CHS568 | Neurodegenerative Diseases | 60 | 60 | 12 |
| CHS569 | Neuromonitoring and Electrophysiology | 60 | 60 | 12 |
| CHS570 | Neurological Rehabilitation | 60 | 60 | 12 |
| CHS571 | Neuromedicine Practice Management | 60 | 60 | 12 |
| CHS572 | Clinical Neuromedicine ICU Internship | 10 | 110 | 12 |
| | Total | | | 72 |

# COURSE DESCRIPTIONS

### Human Anatomy and Physiology I

Human Anatomy and Physiology I provides a comprehensive survey of gross anatomy, functional anatomy, and applied anatomy. Through a combination of lectures and cadaver dissection laboratory sessions, students explore the structure and function of the human body. Topics cover the six main systems (musculoskeletal, cardiovascular, urogenital, respiratory, nervous, and digestive) and the six main regions (thorax, abdomen, pelvis, head & neck, and limbs). Additionally, students delve into wider subjects such as physiology, disease biology, genetics, development, and comparative biology. The course culminates in an individual dissection project, allowing students to apply their knowledge practically.

### Population Health and Society

This course explores the intersection of health, society, and population dynamics. Students delve into topics such as epidemiology, social determinants of health, healthcare disparities, and global health challenges. Through case studies and practical exercises, learners gain insights into promoting health equity, disease prevention, and community-based interventions. By examining the impact of social, cultural, and economic factors on health outcomes, students develop a holistic understanding of population health. Graduates emerge equipped to address health disparities and advocate for evidence-based policies that enhance well-being at both individual and societal levels.

### Communication for Academic Purposes

This course equips students with essential communication skills for success in academic and healthcare settings. Through interactive workshops, students learn effective written and verbal communication techniques. Topics include scientific writing, presentation skills, medical terminology, and interprofessional collaboration. Students practice drafting case reports, patient histories, and research papers. Additionally, they develop active listening skills to enhance patient-provider interactions. Graduates emerge proficient in conveying complex

medical information clearly and compassionately, contributing to optimal patient care and professional growth.

## Communication for Professional Purposes

This course equips students with essential communication skills for success in academic and healthcare settings. Through interactive workshops, students learn effective written and verbal communication techniques. Topics include scientific writing, presentation skills, medical terminology, and interprofessional collaboration. Students practice drafting case reports, patient histories, and research papers. Additionally, they develop active listening skills to enhance patient-provider interactions. Graduates emerge proficient in conveying complex medical information clearly and compassionately, contributing to optimal patient care and professional growth.

## Clinical Microbiology

This course provides a comprehensive understanding of microbial pathogens, host-pathogen interactions, and infection control. Students explore topics such as pathogenicity, virulence, and the immune response to microbial attack. Practical experience in various microbiology techniques and molecular biology enhances students' skills. Graduates emerge equipped to contribute to disease prevention, diagnostics, and patient care in diverse healthcare settings.

## Natural Science Inquiry Perspective: General & Analytical Chemistry I

This is a general chemistry course for students in the life and physical sciences. College chemistry is presented as a science based on empirical evidence that is placed into the context of conceptual, visual, and mathematical models. Students will learn the concepts, symbolism, and fundamental tools of chemistry necessary to carry on a discourse in the language of chemistry. Emphasis will be placed on the relationship between atomic structure, chemical bonds, and the transformation of these bonds through chemical reactions. The fundamentals of organic chemistry are introduced throughout the course to emphasize the connection between chemistry and the other sciences.

## Scientific Principles Perspective: General & Analytical Chemistry II

The course covers the thermodynamics and kinetics of chemical reactions. The relationship between energy and entropy change as the driving force of chemical processes is emphasized through the study of aqueous solutions. Specifically, the course takes a quantitative look at: 1) solubility equilibrium, 2) acid-base equilibrium, 3) oxidation-reduction reactions and 4) chemical kinetics.

## Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab

The course combines hands-on laboratory exercises with workshop-style problem sessions to complement the lecture material. The course emphasizes laboratory techniques and data analysis skills. Topics include: gravimetric, volumetric, thermal, titration and spectrophotometric analyses, and the use of these techniques to analyze chemical reactions.

## Scientific Principles Perspective: General & Analytical Chemistry II Lab

The course combines hands-on laboratory exercises with workshop-style problem sessions to complement the lecture material. The course emphasizes the use of experiments as a tool for chemical analysis and the reporting of results in formal lab reports. Topics include the quantitative analysis of a multicomponent mixture using complexation and double endpoint titration, pH measurement, buffers and pH indicators, the kinetic study of a redox reaction, and the electrochemical analysis of oxidation reduction reactions.

## Mathematical Perspective A: Applied Calculus

This course is an introduction to the study of differential and integral calculus, including the study of functions and graphs, limits, continuity, the derivative, derivative formulas, applications of derivatives, the definite integral, the fundamental theorem of calculus, basic techniques of integral approximation, exponential and logarithmic functions, basic techniques of integration, an introduction to differential equations, and geometric series. Applications in business, management sciences, and life sciences will be included with an emphasis on manipulative skills.

## Biochemistry for Health Sciences

This course will focus on the application of biochemical knowledge to the field of medicine. Students will learn the basic functions of water, carbohydrates, lipids, proteins, and nucleic acids in humans, then explore implications of this knowledge in nutrition and metabolism and its relationship to health and disease.

## Human Anatomy and Physiology II

This course is an integrated approach to the structure and function of the gastrointestinal, cardiovascular, immunological, respiratory, excretory, and reproductive systems with an emphasis on the maintenance of homeostasis. Laboratory exercises include histological examinations, anatomical dissections and physiological experiments using human subjects.

## Mathematical Perspective B: Introduction to Statistics I

This course introduces statistical methods of extracting meaning from data, and basic inferential statistics. Topics covered include data and data integrity, exploratory data analysis, data visualization, numeric summary measures, the normal distribution, sampling

distributions, confidence intervals, and hypothesis testing. The emphasis of the course is on statistical thinking rather than computation. Statistical software is used.

## History and Physical Diagnosis

This is the first in a two-course sequence which introduces and develops the clinical psychosocial skills and anatomic/physiologic science involved in interviewing and examining patients. This course includes practical medical terminology, attitude development and values clarification strategies to aid students in adopting a humanistic approach, interviewing techniques used during patient interaction, comprehensive database development, demonstrated techniques for complete physical examination of all body systems and explanation/implementation of the Problem-Oriented Medical Record (POMR). The course involves weekly patient contact.

## History and Physical Diagnosis II

This second of a two-course sequence introduces and develops the clinical psychosocial and anatomic/physiologic science involved in examining patients. The course includes performing and writing complete, accurate medical histories and physical examinations with small group instruction. Weekly patient contact.

## Pathophysiology I

This introductory course in the Pathophysiology of Disease course sequence will present the physician assistant student with normal and abnormal function of cells in general, illustrating how these cellular abnormalities affect function of specific organ systems. The respiratory, renal, and cardiovascular organ systems will be highlighted and mechanisms of neoplasia will be introduced. The endocrine, and gastrointestinal organ systems will be highlighted.

## Pathophysiology II

This second course is the second in a two-part sequence that introduces the physician assistant student to the normal and abnormal cellular and physiologic processes that underlie many human diseases. Hematologic, pulmonary, immune, and neurologic systems will be covered during this semester. Understanding of how these abnormalities affect clinical laboratory data will also be acquired.

## Pharmacology I

This introductory course in the Clinical Pharmacology course sequence presents the physician assistant student with the necessary foundation of knowledge to safely and effectively prescribe medication for common and/or important disorders. The course will begin with a

study of the mechanics of pharmacology: pharmacodynamics and pharmacokinetics. Following this introduction, an organ systems approach, paralleling the systems presented in Clinical Medicine I, is utilized to study medications relevant to gastrointestinal disease.

## Pharmacology II

This is the second course in the Clinical Pharmacology course sequence that presents the physician assistant student with the necessary foundation of knowledge to safely and effectively prescribe medication for common and/or important disorders. Course content will complement material presented simultaneously in the Clinical Medicine II course including key concepts of pharmacodynamics and pharmacokinetics. These will be utilized to study medications relevant to treat human diseases.

## Advanced Gross Anatomy

This is a course designed as a laboratory-intensive overview of normal structure in prosected (dissections performed ahead of time by staff) examples of cadaver anatomy. Special emphases will be placed on the anatomical correlates associated with upper/lower extremity, neck, and back muscle groups/joints/bones, peripheral nerve plexuses (including spinal and cranial nerves), major arterial/venous pathways, and body viscera in areas of the head/neck, thorax, abdomen, and pelvis. Where appropriate, evidence of pathologies will be discussed at the cadaver side. Additionally, students will participate in clinical case presentations that correspond to the particular dissection subject at-hand throughout the term.

## Clinical Medicine I

This is the first of the Clinical Medicine sequence of courses. The student will be presented with the necessary foundation of knowledge to begin to understand the patient's condition within a clinical context. An organ systems approach is utilized in this course to study diseases of the skin, ears, oral cavity, ophthalmology, upper respiratory tract, endocrine system, and gastrointestinal tract. Principles of preventive medicine will be woven throughout the curriculum. An introduction to disorders involving the cardiovascular system will complete the semester.

## Clinical Medicine II

This is the second in the sequence of Clinical Medicine courses. The course will present the physician assistant student with the necessary knowledge to understand the patient within a clinical context. A body systems approach is utilized in this course to study diseases of the cardiovascular, selected endocrine topics, renal, men's health, heme/oncology, pulmonary, and nervous systems. Principles of preventive medicine will be woven throughout the curriculum.

## Clinical Genetics

This course provides students with an introduction to medical genetics and relevant diseases, syndromes, and clinical disorders. Course focuses on major disorders as subgroups and provides relevant overviews of associated diseases and syndromes within each subgroup. Course also confronts current needs and comprehensive nature of genetic counseling, detailing various patient populations in which this is critical.

## Clinical Lab Medicine

This course will investigate the appropriate use and interpretation of commonly utilized laboratory tests. Students will be asked to predict results that would be expected to occur in the setting of various diseases. In addition, a significant component of this course will be to introduce the student to the principles of electrocardiogram (EKG) interpretation. By the end of the course, students should be able to interpret both normal 12 lead EKGs as well as commonly encountered abnormal EKGs, with an emphasis on ischemia and infarction.

## Pharmacology III

This is the final course in the Clinical Pharmacology course sequence that presents the physician assistant student with the necessary foundation of knowledge to safely and effectively prescribe medication for common and/or important disorders. Course content will complement material presented simultaneously in the Clinical Medicine III course including key concepts of pharmacodynamics and pharmacokinetics. These will be utilized to study medications relevant to treat diseases with a focus on the pediatric and geriatric populations.

## Diagnostic Imaging

This course introduces the PA student to the most clinically relevant diagnostic imaging modalities, emphasizing the risks and benefits of different modalities, as well as the appropriate indications for obtaining a variety of radiographic studies. The student will be exposed to the most common plain radiographic diagnoses likely to be encountered in clinical practice as well as important life threatening diagnoses. At the conclusion of this course, the student will have foundational skills and competency to interpret plain radiographs demonstrating these important diagnoses.

## Clinical Medicine III

This is the final course in the Clinical Medicine sequence of courses and is designed to complete the introduction to human disease. The format will be primarily a population-based approach to presenting disease. The unique diseases and developmental issues encountered in pediatrics, geriatrics, and women's health will be addressed. An introduction to the important medical issues relevant to caring for surgical patients will be presented. Psychiatric illness, geriatrics, musculoskeletal and rheumatology will be presented. Special topics of trauma, burns, and emergency medicine will complete the course. The principles of preventive medicine will continue to be integrated throughout the curriculum.

## Society and Behavioral Medicine

This course is the introduction to professionalism, professional behaviors for the PA, and behavior science for the PA student. We will explore stereotypes and providers' inappropriate (or lack of) knowledge and how this might influence access to care. The focus is non-somatic medical skills and knowledge needed to become a clinician who manages these issues with insight into human behavior. Topics will include issues related to age, socioeconomic status, cultural, racial, religious, ethnic and family diversity etc. We will seek out and develop tools to recognize facets (including risk factors for and signs/symptoms) of the above issues and of abuse issues. Setting this foundation in basic psychopathology and its relationship to understanding human illness is core to the PA student's developing professionalism.

## Hospital Practice

The student will begin working with hospitalized patients prior to their clinical year of rotations in small group lead instruction. This course engages the student in the critical thinking process used in the daily care and management of a patient. Student-generated patient cases (from hospital work) will be utilized to work through the critical thinking process that is employed in the day-to-day management of a patient. Enhancement of the development of differential diagnosis, assessment and the treatment plans will be emphasized. Order writing, daily progress notes and clinical procedures for each case will be thoroughly explored.

## Clinical Integration

This course builds upon the foundation developed during the professional didactic phase of the physician assistant program. Drawing upon this foundation, students will analyze simple and complex case-based patient scenarios. Working individually and in groups, and using computer-assisted patient simulators when possible, the students will be asked to gather data from physical examination, and EKG and laboratory data. Based on the data gathered, the student will recommend further diagnostic evaluations, suggest appropriate treatment, and develop follow-up plans based on the scenario presented. The development of thorough and relevant differential diagnoses for each case study will be an integral part of this process. The case studies will be drawn from a broad variety of clinical disciplines. In addition, students will be required to work in small groups to develop their own "teaching case" and will lead the remainder of the class through a learning exercise based on the case they have created.

## Procedural Clinical Skills

This course provides the PA student with the requisite skills for professional courses and internships. Emphasis is on developing competence in basic skills in conjunction with patient care. Current hepatitis B immunization status highly recommended.

## Healthcare Policy and Law

This course will provide an overview of health care law, principles and ethics as it relates to the health care provider. Lecture topics will cover an introduction to law, criminal aspects of health care, patient consent issues, legal reporting obligations, contracts and antitrust, information management and health care records, HIPAA regulations, legal risk to the health care provider, patient safety and quality assurance, The Health Care Act, end of life issues, job negotiations and malpractice insurance issues.

## Graduate Project I

This is the first of a two-course sequence which will provide the physician assistant student with opportunities to prepare a formal graduate capstone project/paper. Projects may be in the form of: clinical practice essay, PA curriculum development, medically-related community service project, in-depth medical case review, meta-analysis of specific disease / syndrome, or original medical research. This capstone project/paper will build on clinical training and enable students to build skills for life-long learning as problem solvers and critical evaluators of medical and scientific literature.

## Pediatrics

This mandatory rotation in the field of pediatric medicine provides hands-on clinical exposure and experiences. This builds on solid basic medical knowledge and competencies acquired in the didactic, pre-clinical coursework.

## Internal Medicine

This mandatory rotation in the field of general medicine provides hands-on clinical exposure and experiences. This builds on solid basic medical knowledge and competencies acquired in the didactic, pre-clinical coursework.

## Women's Health

This mandatory rotation in the field of obstetrics and gynecologic medicine provides hands-on clinical exposure and experiences. This builds on solid basic medical knowledge and competencies acquired in the didactic, pre-clinical coursework.

## Professional Practice I

This is the first in a sequence of courses designed for the physician assistant student in the clinical setting. The course will cover discipline specific areas including a pulmonary workshop and lectures on topics such as working with a pharmaceutical company, professionalism, and rehabilitative medicine. The course will also include an ongoing Evidence-Based Medicine (EBM) series and physician assistant national certification exam board review.

## Graduate Project II

This course will provide the physician assistant student with continued preparation of a formal graduate project for the PA Program. Projects may be in the form of: clinical practice essay, PA curriculum development, medically-related community service project, in-depth medical case review, meta-analysis of specific disease/syndrome, or original medical research. This course will culminate with the completion of the capstone project/paper which is founded in clinical experience and enables students to build skills for life-long learning as problem solvers and critical evaluators of medical and scientific literature.

## Emergency Medicine

This mandatory rotation in the field of emergency medicine provides hands-on clinical exposure and experiences. This builds on solid basic medical knowledge and competencies acquired in the didactic, pre-clinical coursework.

## Surgery

This mandatory rotation in the field of surgery provides hands-on clinical exposure and experiences. This builds on solid basic medical knowledge and competencies acquired in the didactic, pre-clinical coursework.

## Orthopedics

This mandatory rotation in the field of orthopedic medicine provides hands-on clinical exposure and experiences. This builds on solid basic medical knowledge and competencies acquired in the didactic, pre-clinical coursework.

## Behavioral Health

This mandatory rotation in the field of psychiatric medicine provides hands-on clinical exposure and experiences. This builds on solid basic medical knowledge and competencies acquired in the didactic, pre-clinical coursework. (Matriculation into the fifth year of the PA Program)

## Family Medicine

This mandatory rotation in the field of family medicine provides hands-on clinical exposure and experiences. This builds on solid basic medical knowledge and competencies acquired in the didactic, pre-clinical coursework.

### Elective Rotation

This mandatory rotation in an elective field of medicine provides additional hands-on clinical exposure and experiences. This builds on solid basic medical knowledge and competencies acquired in the didactic, pre-clinical coursework.

### Professional Practice II

This is the second in a sequence of courses designed for the physician assistant student in the clinical setting. The course will cover discipline specific areas including complementary medicine lectures and professionalism. The course will also include an ongoing Evidence-Based Medicine (EBM) series and physician assistant national certification exam board review.

### Professional Practice III

This is the last in a sequence of courses designed for the physician assistant student in the clinical setting. The course will cover discipline specific areas including lectures regarding PA workforce issues, coding and billing, social service work and a resume writing workshop. The course will also include an ongoing Evidence-Based Medicine (EBM) series and physician assistant national certification exam board review.

# COURSE OUTLINES

Course Title: Human Anatomy and Physiology I

Course Description:

This course provides a foundational understanding of human anatomy and physiology. It explores the structure and function of the human body at the cellular, tissue, and organ levels. Students will learn about common organizational patterns, anatomical terminology, and physiological processes. The course serves as a prerequisite for more advanced studies in healthcare.

Learning Objectives:

- **Anatomical Knowledge:** Understand the organization of the human body and its major systems.
- **Physiological Concepts:** Explore cellular processes, homeostasis, and tissue function.
- **Terminology:** Familiarize yourself with anatomical terms and common patterns.

Topics Covered:

1. **Introduction to Anatomy and Physiology:**
    - Levels of organization.

    - Basic anatomical terminology.
2. **Chemical Basis of Life:**
    - Biomolecules (carbohydrates, lipids, proteins, nucleic acids).
    - Cellular metabolism.
3. **Cellular Structure and Function:**
    - Cell types (e.g., epithelial, connective, muscle, nerve).
    - Cellular processes (diffusion, osmosis, active transport).
4. **Tissues:**
    - Types of tissues (epithelial, connective, muscle, nervous).
    - Histology and microscopic examination.

### Assessment:

- **Quizzes and Examinations:** Testing knowledge of anatomical structures and physiological processes.
- **Laboratory Practicals:** Hands-on exploration of anatomical models and histological slides.
- **Written Assignments:** Applying concepts to clinical scenarios.

### Recommended Reading:

1. "Human Anatomy & Physiology" by Elaine N. Marieb and Katja Hoehn.
2. Relevant research articles on specific anatomical and physiological topics.

## Course Title: General Analytical Chemistry I and Lab

### Course Description:

This course introduces fundamental concepts in general and analytical chemistry, providing a solid foundation for understanding chemical principles. Students will explore chemical reactions, atomic structure, bonding, stoichiometry, and basic laboratory techniques. The accompanying laboratory component allows hands-on experience in chemical experimentation and data analysis.

### Learning Objectives:

- **Chemical Fundamentals:** Understand the periodic table, atomic structure, and chemical bonding.
- **Stoichiometry:** Apply quantitative relationships in chemical reactions.
- **Laboratory Skills:** Develop proficiency in laboratory techniques and safety protocols.

### Topics Covered:

1. **Atomic Structure and Periodic Trends:**
    - Atomic models.
    - Electron configuration.
    - Periodic properties.
2. **Chemical Bonding:**
    - Ionic, covalent, and metallic bonds.
    - Lewis structures.
3. **Chemical Reactions:**
    - Balancing equations.

    - Types of reactions (acid-base, redox, precipitation).
4. **Analytical Techniques:**
    - Spectroscopy.
    - Chromatography.
    - Titration.

Assessment:

- **Lecture Examinations:** Testing theoretical knowledge.
- **Laboratory Reports:** Documenting experimental procedures and results.
- **Problem-Solving Assignments:** Applying chemical principles to real-world scenarios.

Recommended Reading:

1. "Chemistry: The Central Science" by Brown, LeMay, Bursten, and Murphy.
2. Relevant research articles on analytical chemistry techniques.

Course Title: Applied Calculus

Course Description:

The "Applied Calculus" course introduces fundamental concepts in calculus and their practical applications. Students will explore topics such as limits, derivatives, integrals, and optimization techniques. The course emphasizes problem-solving skills relevant to healthcare and scientific contexts. Calculus serves as a crucial tool for understanding rates of change, modeling biological processes, and analyzing data.

Learning Objectives:

- **Calculus Fundamentals:** Understand the basic principles of differentiation and integration.
- **Application to Health Sciences:** Learn how calculus concepts relate to medical and scientific scenarios.
- **Quantitative Reasoning:** Develop skills in solving real-world problems using calculus techniques.

Topics Covered:

1. **Limits and Continuity:**
    - Understanding the concept of limits.
    - Evaluating limits algebraically and graphically.
2. **Derivatives:**
    - Calculating derivatives of functions.
    - Applications of derivatives (e.g., rates of change, optimization).
3. **Integrals:**
    - Definite and indefinite integrals.
    - Area under curves and accumulation.
4. **Applications in Health Sciences:**
    - Modeling growth and decay.
    - Analyzing drug concentrations.
    - Interpreting biological data using calculus.

Assessment:

- **Quizzes and Examinations:** Testing understanding of calculus concepts.
- **Problem-Solving Assignments:** Applying calculus techniques to healthcare scenarios.
- **Final Project:** Investigating a health-related problem using calculus methods.

Recommended Reading:

1. “Calculus: Early Transcendentals” by James Stewart.
2. Relevant research articles on calculus applications in health sciences.

Course Title: Ethical Perspectives

Course Description:

The “Ethical Perspectives” course explores fundamental ethical principles and their application in healthcare practice. Students will engage in critical discussions, case analyses, and ethical reasoning exercises. The course aims to foster ethical awareness, sensitivity, and decision-making skills relevant to the physician assistant role.

Learning Objectives:

- **Ethical Foundations:** Understand major ethical theories (e.g., deontology, utilitarianism, virtue ethics).
- **Healthcare Ethics:** Apply ethical principles to clinical scenarios.
- **Professional Responsibility:** Develop an ethical framework for patient care.

Topics Covered:

1. **Introduction to Medical Ethics:**
    - Historical context and evolution of medical ethics.
    - Ethical principles (autonomy, beneficence, non-maleficence, justice).
2. **Informed Consent and Shared Decision-Making:**
    - Patient autonomy and capacity.
    - Communicating risks, benefits, and alternatives.
3. **End-of-Life Issues:**
    - Advance directives.
    - Palliative care and euthanasia.
4. **Resource Allocation and Justice:**
    - Distributive justice in healthcare.
    - Ethical dilemmas related to scarce resources.

Assessment:

- **Case Studies and Discussions:** Analyzing ethical scenarios.
- **Written Reflections:** Applying ethical principles to personal experiences.
- **Group Projects:** Collaborating on ethical guidelines or policies.

## Recommended Reading:

1. “Principles of Biomedical Ethics” by Tom L. Beauchamp and James F. Childress.
2. Relevant research articles on healthcare ethics.

## Course Title: Population Health and Safety

## Course Description:

The “Population Health and Safety” course explores the intersection of public health, safety, and healthcare delivery. Students will examine the determinants of health, epidemiological principles, and strategies for promoting well-being at the population level. Additionally, the course emphasizes patient safety, infection control, and risk management within clinical practice.

## Learning Objectives:

- **Population Health:** Understand the social, environmental, and behavioral factors that influence health outcomes.
- **Epidemiology:** Learn how to analyze health data, identify patterns, and assess risk.
- **Patient Safety:** Develop skills in preventing medical errors, ensuring safe care, and managing adverse events.

## Topics Covered:

1. **Introduction to Population Health:**
    - Social determinants of health.
    - Health disparities and inequalities.
2. **Epidemiological Concepts:**
    - Incidence and prevalence.
    - Measures of disease frequency.
3. **Health Promotion and Disease Prevention:**
    - Strategies for improving population health.
    - Vaccination programs and health campaigns.
4. **Patient Safety and Risk Management:**
    - Infection control practices.
    - Medication safety.
    - Error reporting and analysis.

## Assessment:

- **Case Studies:** Applying population health principles to real-world scenarios.
- **Safety Protocols:** Demonstrating knowledge of infection control and patient safety measures.
- **Written Reports:** Analyzing epidemiological data and proposing interventions.

## Recommended Reading:

1. “Epidemiology: Beyond the Basics” by Moyses Szklo and Javier Nieto.
2. Relevant research articles on population health and patient safety.

## Course Title: Professional Health Principles

## Course Description:

The “Professional Health Principles” course provides foundational knowledge and skills essential for physician assistants (PAs) to function effectively in the healthcare system. Students will explore ethical, legal, and professional aspects of PA practice, as well as develop critical thinking and communication skills. The course emphasizes the role of PAs as integral members of the healthcare team.

## Learning Objectives:

- **Ethical Practice:** Understand ethical principles and their application in clinical decision-making.
- **Legal Considerations:** Familiarize yourself with laws and regulations governing PA practice.
- **Interprofessional Collaboration:** Develop effective communication and teamwork skills.

## Topics Covered:

1. **Professionalism and Scope of Practice:**
    - Role of PAs in healthcare delivery.
    - Professional organizations and standards.
2. **Ethical Dilemmas in Healthcare:**
    - Informed consent.
    - Confidentiality and patient autonomy.
3. **Legal and Regulatory Framework:**
    - State and federal laws affecting PAs.
    - Liability and malpractice.
4. **Interprofessional Teamwork:**
    - Effective communication with colleagues.
    - Collaborating with physicians, nurses, and other healthcare professionals.

## Assessment:

- **Case Studies:** Analyzing ethical and legal scenarios.
- **Class Discussions:** Engaging in dialogue on professional issues.
- **Written Assignments:** Reflecting on personal values and professional responsibilities.

## Recommended Reading:

1. “Physician Assistant Ethics and Law” by Ruth Ballweg and Darwin Brown.
2. Relevant articles on PA practice guidelines and legal updates.

## Course Title: Human Anatomy and Physiology II

### Course Description

This course delves into the dynamic realm of human anatomy and physiology. We'll focus on the intricate workings of the respiratory and digestive systems, which are vital components responsible for gas exchange and energy consumption. Through engaging content, you'll discover the wonders of the human body and its direct impact on human development and disease prevention.

### Learning Objectives

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

- Identify the major parts of the respiratory and digestive systems.
- Describe normal human anatomy structure and function for the respiratory and digestive systems.
- Relate anatomical structure and function at the cellular, tissue, organ, and body system levels to clinical diagnoses and dysfunction of the respiratory and digestive systems.

### Topics Covered

1. **Respiratory System:**
    - Anatomy of the lungs, trachea, bronchi, and alveoli.
    - Gas exchange mechanisms.
    - Respiratory control and regulation.
2. **Digestive System:**
    - Structure and function of the gastrointestinal tract.
    - Nutrient absorption and metabolism.
    - Role of enzymes and hormones in digestion.
3. **Clinical Applications:**
    - Common respiratory and digestive disorders.
    - Diagnostic techniques and treatments.

### Assessment

- Quizzes and exams assessing understanding of course material.
- Practical demonstrations (e.g., identifying anatomical structures).
- Written assignments on clinical case studies.

### Recommended Reading

1. Tortora, G. J., & Derrickson, B. H. (2017). **Principles of Anatomy and Physiology**. Wiley.
2. Marieb, E. N., & Hoehn, K. (2018). **Human Anatomy & Physiology**. Pearson.

## Course Title: General Education: Global Perspective

### Course Description

This course explores global issues, cultural diversity, and interconnectedness. Through a multidisciplinary lens, students will analyze global challenges, historical contexts, and

contemporary trends. We'll delve into topics such as globalization, sustainable development, human rights, and cross-cultural communication. By examining global perspectives, students will gain critical thinking skills and a deeper understanding of our interconnected world.

### Learning Objectives

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

- Analyze global issues from diverse cultural viewpoints.
- Understand the impact of globalization on societies, economies, and the environment.
- Communicate effectively across cultural boundaries.

### Topics Covered

1. **Globalization and Its Effects:**
    - Historical context and drivers of globalization.
    - Cultural exchange and its implications.
    - Challenges and opportunities in a globalized world.
2. **Sustainable Development:**
    - Environmental stewardship and social equity.
    - Balancing economic growth with ecological responsibility.
    - Case studies of successful sustainable initiatives.
3. **Human Rights and Social Justice:**
    - Universal human rights principles.
    - Addressing inequality, discrimination, and social disparities.
    - Advocacy for marginalized communities.
4. **Cross-Cultural Communication:**
    - Effective communication strategies in diverse settings.
    - Cultural competence and empathy.
    - Overcoming language barriers.

### Assessment

- Participation in class discussions and group activities.
- Research projects on global issues.
- Reflective essays exploring personal growth in understanding global perspectives.

### Recommended Reading

1. Sen, A. (2006). **Identity and Violence: The Illusion of Destiny**. W. W. Norton & Company.
2. Appiah, K. A. (2006). **Cosmopolitanism: Ethics in a World of Strangers**. W. W. Norton & Company.

## Course Title: General Analytical Chemistry II and Lab

### Course Description

This course builds upon the foundational principles of analytical chemistry. Students will explore advanced techniques for chemical analysis, including spectroscopy, chromatography, and electrochemical methods. Laboratory sessions will provide hands-on experience in

sample preparation, data collection, and interpretation. Emphasis will be placed on practical applications relevant to healthcare and medical contexts.

### Learning Objectives

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

- Apply advanced analytical techniques to solve complex chemical problems.
- Interpret experimental data and draw meaningful conclusions.
- Demonstrate proficiency in laboratory skills and safety protocols.

### Topics Covered

1. **Spectroscopic Methods:**
    - UV-Vis spectroscopy.
    - Infrared (IR) spectroscopy.
    - Atomic absorption spectroscopy.
2. **Chromatographic Techniques:**
    - High-performance liquid chromatography (HPLC).
    - Gas chromatography (GC).
3. **Electrochemical Analysis:**
    - Potentiometry.
    - Voltammetry.
4. **Laboratory Sessions:**
    - Calibration of instruments.
    - Quantitative analysis of pharmaceuticals and biological samples.
    - Quality control procedures.

### Assessment

- Lab reports and practical assessments.
- Written exams on theoretical concepts.
- Participation in class discussions and problem-solving sessions.

### Recommended Reading

1. Skoog, D. A., Holler, F. J., & Crouch, S. R. (2017). **Principles of Instrumental Analysis**. Cengage Learning.
2. Christian, G. D. (2013). **Analytical Chemistry**. Wiley.

## Course Title: Culture, Diversity, and Health

### Course Description

This multidisciplinary course explores the intersection of culture, diversity, and healthcare. Students will gain insights into how psychosocial and environmental factors impact health and well-being across different populations. We'll delve into public health systems, cultural competence, and strategies for providing contextually appropriate care in rural, remote, tropical, and Aboriginal and Torres Strait Islander communities.

### Learning Objectives

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

- Integrate and apply the knowledge, skills, and attitudes required to provide patient care in a supervised, delegated team model with a medical practitioner.
- Practise culturally and contextually appropriate health care for diverse populations.

### Topics Covered

1. **Cultural Competence:**
    - Understanding cultural norms, beliefs, and practices.
    - Addressing health disparities and inequities.
2. **Healthcare Systems and Diversity:**
    - Comparative analysis of healthcare systems worldwide.
    - Challenges in delivering equitable care.
3. **Aboriginal and Torres Strait Islander Health:**
    - Historical context and cultural considerations.
    - Strategies for improving health outcomes.
4. **Global Health Perspectives:**
    - Public health approaches in different regions.
    - Social determinants of health.

### Assessment

- Participation in discussions and case studies.
- Research projects on cultural competence.
- Reflective essays on personal growth in understanding diversity.

### Recommended Reading

1. “Identity and Violence: The Illusion of Destiny” **by Amartya Sen.**
2. “Cosmopolitanism: Ethics in a World of Strangers” by Kwame Anthony Appiah.

## Course Title: Communication for Academic Purposes

### Course Description

This course focuses on enhancing students’ communication skills for academic and professional contexts. Through interactive sessions, students will develop effective written and oral communication strategies. Emphasis will be placed on critical thinking, clarity, and precision in conveying complex medical information.

### Learning Objectives

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

- Write clear and concise academic papers, reports, and case studies.
- Deliver effective presentations using evidence-based content.
- Communicate collaboratively in interdisciplinary healthcare teams.

### Topics Covered

1. **Academic Writing:**
    - Structure and organization of research papers.
    - Citations and referencing.
    - Editing and proofreading techniques.
2. **Oral Communication:**
    - Effective presentation skills.
    - Handling questions and engaging the audience.
    - Interprofessional communication.
3. **Medical Terminology:**
    - Understanding and using specialized terminology.
    - Communicating with patients and colleagues.

### Assessment

- Written assignments (e.g., literature reviews, case reports).
- Oral presentations on medical topics.
- Participation in group discussions and role-playing scenarios.

### Recommended Reading

1. “Writing for Academic Success” by Gail Craswell and Megan Poore.
2. **“The Elements of Style”** by William Strunk Jr. and E. B. White.

## Course Title: Evidence-Based Practice

### Course Description

This course equips students with the skills to critically evaluate and apply evidence in clinical decision-making. We explore research methodologies, study designs, and statistical concepts relevant to healthcare. By the end of the course, students will confidently integrate evidence-based approaches into their practice.

### Learning Objectives

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

- Formulate answerable clinical questions using established frameworks.
- Conduct structured literature searches.
- Critically appraise research articles using tools like the hierarchy of evidence.
- Understand concepts such as effect size, odds ratio, and number needed to treat.
- Translate evidence into clinical practice.

### Topics Covered

1. **Introduction to Evidence-Based Practice:**
    - Why evidence matters.
    - Types of evidence.
    - The five steps of evidence-based practice.
2. **Research Design and Methodology:**

    - Quantitative vs. qualitative research.
    - Sampling techniques.
    - Rigour and trustworthiness.
3. **Critical Appraisal:**
    - Evaluating research articles.
    - Understanding statistical significance.
4. **Implementation and Translation:**
    - Applying evidence in patient care.
    - Overcoming barriers to implementation.

### Assessment

- Written assignments (e.g., critical appraisals, case analyses).
- Participation in evidence-based discussions.
- Practical exercises on searching databases.

### Recommended Reading

1. Craswell, G., & Poore, M. (2015). **Writing for Academic Success**. Sage Publications.
2. Strunk Jr., W., & White, E. B. (2000). **The Elements of Style**. Pearson.

## Course Title: Biochemistry for Health Services

### Course Description

This course provides a comprehensive understanding of biochemistry principles relevant to healthcare. Students will explore the molecular basis of biological processes, including metabolism, enzymology, and cellular signaling. Emphasis will be placed on applications in clinical practice and patient care.

### Learning Objectives

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

- Explain fundamental biochemical concepts.
- Analyze biochemical pathways and their relevance to health.
- Apply biochemistry knowledge to medical scenarios.

### Topics Covered

1. **Molecular Biology Basics:**
    - DNA structure and replication.
    - RNA transcription and translation.
2. **Metabolism:**
    - Glycolysis, citric acid cycle, and oxidative phosphorylation.
    - Lipid and amino acid metabolism.
3. **Enzymology:**
    - Enzyme kinetics and regulation.
    - Clinical implications of enzyme deficiencies.
4. **Cellular Signaling:**
    - Hormones and second messengers.
    - Signal transduction pathways.

### Assessment

- Quizzes and exams assessing understanding of biochemical concepts.
- Case studies applying biochemistry principles to patient scenarios.
- Laboratory exercises demonstrating practical applications.

### Recommended Reading


1. Berg, J. M., Tymoczko, J. L., & Stryer, L. (2015). **Biochemistry**. W. H. Freeman.
2. Devlin, T. M. (2010). **Textbook of Biochemistry with Clinical Correlations**. Wiley.


## Course Title: Pathophysiology I

### Course Description

In this course, students delve into the underlying mechanisms of disease processes. We explore how disruptions at the cellular and molecular levels lead to clinical manifestations. By understanding pathophysiology, students gain insights into diagnosis, treatment, and patient management.

### Learning Objectives

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

- Explain the etiology and pathogenesis of common diseases.
- Analyze the impact of altered physiological processes on health.
- Apply pathophysiological knowledge to patient care.

### Topics Covered

1. **Cellular and Molecular Basis:**
    - Cellular adaptation, injury, and death.
    - Genetic and epigenetic factors.
2. **Inflammation and Immune Responses:**
    - Acute and chronic inflammation.
    - Autoimmune disorders.
3. **Cardiovascular Disorders:**
    - Hypertension, heart failure, and ischemic heart disease.
    - Atherosclerosis and thrombosis.
4. **Respiratory and Renal Pathology:**
    - COPD, asthma, and renal failure.
    - Acid-base imbalances.

### Assessment

- Quizzes and exams assessing understanding of pathophysiological concepts.
- Case studies analyzing disease scenarios.
- Participation in group discussions.

### Recommended Reading

1. **“Pathophysiology: The Biologic Basis for Disease in Adults and Children”** by Kathryn L. McCance and Sue E. Huether.
2. **“Robbins and Cotran Pathologic Basis of Disease”** by Vinay Kumar, Abul K. Abbas, and Jon C. Aster.

## Course Title: Research Methods

### Course Description

This course equips students with essential skills for conducting medical research. We explore various research methodologies, study designs, and statistical concepts relevant to healthcare. By understanding research methods, students will contribute to evidence-based practice and enhance patient care.

### Learning Objectives

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

- Formulate research questions and hypotheses.
- Design research studies and select appropriate methodologies.
- Analyze and interpret research data.

### Topics Covered

1. **Introduction to Research:**
    - Importance of evidence-based practice.
    - Ethical considerations in research.
2. **Quantitative Research Methods:**
    - Experimental design.
    - Surveys and questionnaires.
    - Data collection and statistical analysis.
3. **Qualitative Research Approaches:**
    - Interviews and focus groups.
    - Content analysis and thematic coding.
4. **Critical Appraisal of Literature:**
    - Evaluating research articles.
    - Understanding bias and validity.

### Assessment

- Research proposal development.
- Participation in research projects.
- Written critiques of scientific articles.

### Recommended Reading

1. Creswell, J. W. (2014). **Research Design: Qualitative, Quantitative, and Mixed Methods Approaches**. Sage Publications.

2. Polit, D. F., & Beck, C. T. (2017). **Nursing Research: Generating and Assessing Evidence for Nursing Practice**. Wolters Kluwer.

## Course Title: Clinical Microbiology

### Course Description

This course provides an in-depth understanding of medical microbiology and infectious diseases, with a focus on patient management and infection control. Students will explore the properties of microorganisms involved in infections, appropriate immune responses, and the major bacterial, fungal, and parasitic pathogens of clinical importance.

### Learning Objectives

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

- Understand the properties and host range of microorganisms causing infections.
- Analyze appropriate immune responses to infections.
- Identify major bacterial, fungal, and parasitic pathogens relevant to clinical practice.

### Topics Covered

1. **Introduction to Medical Microbiology:**
    - Properties of microorganisms.
    - Host range and immune responses.
2. **Human Pathogens:**
    - Overview of major bacterial, fungal, and parasitic pathogens.
    - Examples include Staphylococcus aureus, Escherichia coli, and Mycobacterium tuberculosis.
3. **Clinical Bacteriology:**
    - Detailed study of bacterial pathogens.
    - Identification methods and antibiotic susceptibility testing.
4. **Fungal and Parasitic Infections:**
    - Yeast, filamentous fungi, protozoa, and helminths.
    - Clinical manifestations and treatment.

### Assessment

- Quizzes and exams on microbiological concepts.
- Case studies analyzing real-world infection scenarios.
- Laboratory exercises for practical skills.

### Recommended Reading

1. McCance, K. L., & Huether, S. E. (Eds.). (2025). **Pathophysiology: The Biologic Basis for Disease in Adults and Children**. Elsevier.
2. Forbes, B. A., Sahm, D. F., & Weissfeld, A. S. (Eds.). (2025). **Bailey & Scott's Diagnostic Microbiology**. Elsevier.

## Course Title: Communication for Professional Purposes

### Course Description

This course focuses on enhancing students' communication skills for professional healthcare contexts. Through interactive sessions, students will develop effective written and oral communication strategies. Emphasis will be placed on critical thinking, clarity, and precision in conveying complex medical information.

### Learning Objectives

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

- Write clear and concise professional documents (e.g., medical reports, patient notes).
- Deliver effective presentations to colleagues and patients.
- Communicate collaboratively in interdisciplinary healthcare teams.

### Topics Covered

1. **Professional Writing:**
    - Structure and organization of medical reports.
    - Documentation standards and ethical considerations.
2. **Oral Communication:**
    - Effective presentation skills for case discussions.
    - Patient education and informed consent.
3. **Interprofessional Collaboration:**
    - Communicating with physicians, nurses, and other healthcare professionals.
    - Conflict resolution and teamwork.

### Assessment

- Written assignments (e.g., medical case summaries, patient education materials).
- Oral presentations on medical topics.
- Participation in simulated healthcare scenarios.

### Recommended Reading

1. "Writing for Health Professionals" **by Barbara Heifferon.**
2. "Effective Communication for Healthcare Professionals" by Philip Burnard.

## Course Title: Introduction to Pharmacology I

### Course Description

This foundational course introduces students to the principles of pharmacology. We explore the interactions between drugs and the human body, emphasizing pharmacodynamics (what drugs do to the body) and pharmacokinetics (what the body does to the drug). Students will gain insights into drug absorption, distribution, metabolism, and elimination.

### Learning Objectives

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

- Define pharmacology, pharmacodynamics, and pharmacokinetics.
- Operate drug information searches using tools like Epocrates and LexiComp (through UpToDate).
- Describe drug absorption, distribution, excretion, and metabolism.
- List the advantages and disadvantages of different routes of drug administration.

### Topics Covered

1. **Introduction to Pharmacology:**
    - Definitions and scope of pharmacology.
    - Drug classifications and mechanisms of action.
2. **Pharmacodynamics:**
    - Receptor interactions and drug effects.
    - Dose-response relationships.
3. **Pharmacokinetics:**
    - Absorption: routes and factors affecting absorption.
    - Distribution: tissue binding and blood-brain barrier.
    - Metabolism: liver enzymes and drug transformation.
    - Elimination: renal excretion and half-life.
4. **Routes of Drug Administration:**
    - Oral, intravenous, topical, inhalation, and more.
    - Pros and cons of each route.

### Assessment

- Quizzes and exams assessing understanding of pharmacological concepts.
- Practical exercises using drug information databases.
- Case studies analyzing drug administration scenarios.

### Recommended Reading

1. **“Pharmacology: Principles and Practice”** by Miles Hacker, William S. Messer, and Kenneth A. Bachmann.
2. **“Basic & Clinical Pharmacology”** by Bertram G. Katzung and Anthony J. Trevor.

## Course Title: Mathematics Perspective B: Introduction to Statistics I

### Course Description

This course provides an introduction to statistical methods and their applications. Students will learn fundamental concepts in probability theory, data analysis, and statistical inference. Emphasis will be placed on practical skills for interpreting and using statistical information in healthcare contexts.

### Learning Objectives

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

- Understand basic probability concepts and sample spaces.
- Apply statistical techniques to analyze data.
- Interpret statistical results and draw meaningful conclusions.

### Topics Covered

1. **Probability and Sample Spaces:**
    - Independence, conditional probability, and Bayes' theorem.
    - Random variables and distributions.
2. **Descriptive Statistics:**
    - Measures of central tendency and variability.
    - Data visualization techniques.
3. **Parametric Families of Distributions:**
    - Normal distribution, binomial distribution, and exponential distribution.
    - Moments and transformations.
4. **Statistical Inference:**
    - Hypothesis testing and confidence intervals.
    - Central limit theorem.

### Assessment

- Quizzes and exams assessing understanding of statistical concepts.
- Practical exercises analyzing real-world data sets.
- Written reports interpreting statistical findings.

### Recommended Reading

1. "Introduction to Mathematical Statistics" **by Hogg, McKean, and Craig.**
2. "Statistics" **by Freedman, Pisani, and Purves**.

## Course Title: Pathophysiology II

### Course Description

In this advanced course, students delve deeper into the underlying mechanisms of disease processes. We explore complex pathophysiological concepts related to various organ systems and clinical conditions. By understanding these intricate processes, students will be better equipped to diagnose, treat, and manage patients in their future healthcare practice.

### Learning Objectives

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

- Analyze the etiology and pathogenesis of specific diseases.
- Understand the impact of altered physiological processes on health outcomes.
- Apply pathophysiological knowledge to clinical decision-making.

### Topics Covered

1. **Cardiovascular Pathophysiology:**
    - Heart failure, arrhythmias, and vascular disorders.

    - Atherosclerosis and hypertension.
2. **Neurological Pathology:**
    - Stroke, neurodegenerative diseases, and traumatic brain injuries.
    - Seizure disorders and peripheral neuropathies.
3. **Endocrine and Metabolic Disorders:**
    - Diabetes mellitus, thyroid dysfunction, and adrenal disorders.
    - Obesity-related complications.
4. **Gastrointestinal and Renal Pathology:**
    - Inflammatory bowel diseases, liver diseases, and renal failure.
    - Acid-base imbalances and electrolyte disturbances.

### Assessment

- Quizzes and exams assessing understanding of complex pathophysiological concepts.
- Case studies analyzing real-world disease scenarios.
- Participation in group discussions and problem-solving sessions.

### Recommended Reading

1. **"Pathophysiology: The Biologic Basis for Disease in Adults and Children"** by Kathryn L. McCance and Sue E. Huether.
2. **"Robbins and Cotran Pathologic Basis of Disease"** by Vinay Kumar, Abul K. Abbas, and Jon C. Aster.

## Course Title: **History and Physical Diagnosis I**

### Course Description

This course provides foundational training in obtaining medical histories and performing comprehensive physical examinations. Students will learn essential skills for gathering patient information, conducting interviews, and assessing physical findings. The course emphasizes evidence-based approaches to history-taking and examination techniques.

### Learning Objectives

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

- Demonstrate proficiency in obtaining accurate medical histories.
- Perform a thorough physical examination using appropriate techniques.
- Recognize normal and abnormal findings during patient assessments.

### Topics Covered

1. **Introduction to History-Taking:**
    - Importance of patient narratives.
    - Components of a comprehensive medical history.
2. **Interview Techniques:**
    - Active listening and rapport-building.
    - Structured questioning for specific symptoms.
3. **Physical Examination Skills:**
    - Inspection, palpation, percussion, and auscultation.
    - Systematic approach to assessing different body systems.

4. **Clinical Reasoning:**
    - Integrating history and physical findings.
    - Differential diagnosis and initial assessment.

### Assessment

- Small group labs for hands-on practice in history-taking and physical examination.
- Objective Structured Clinical Examinations (OSCEs) to evaluate skills.
- Written reflections on patient encounters.

### Recommended Reading

1. **"Bates' Guide to Physical Examination and History Taking"** by Lynn S. Bickley.
2. **"Clinical Methods: The History, Physical, and Laboratory Examinations"** by Henry J. Wintrobe et al..

## Course Title: **Introduction to Digitization**

### Course Description

This course introduces students to the principles and practices of digitization in healthcare. Students will explore how digital technologies impact patient care, medical records, and health information management. Emphasis will be placed on understanding electronic health records (EHRs), telemedicine, and data security.

### Learning Objectives

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

1. Understand the significance of digitization in modern healthcare.
2. Describe the components and benefits of electronic health records.
3. Evaluate telemedicine applications and their impact on patient-provider interactions.
4. Recognize the importance of data security and privacy in a digital healthcare environment.

### Topics Covered

1. **Introduction to Health Informatics:**
    - Overview of health information technology.
    - Role of digitization in improving patient outcomes.
2. **Electronic Health Records (EHRs):**
    - EHR components and functionalities.
    - Interoperability and data exchange.
3. **Telemedicine and Telehealth:**
    - Teleconsultations, remote monitoring, and virtual visits.
    - Legal and ethical considerations.
4. **Data Security and Privacy:**
    - HIPAA regulations.
    - Protecting patient information in digital systems.

### Assessment

- Quizzes and exams assessing understanding of digitization concepts.
- Case studies analyzing EHR implementation and telemedicine scenarios.
- Written reports on data security practices.

### Recommended Reading

1. **"Health Informatics: Practical Guide for Healthcare and Information Technology Professionals"** by Robert E. Hoyt and Ann K. Yoshihashi.
2. **"Healthcare Information Technology Exam Guide for CompTIA Healthcare IT Technician and HIT Pro Certifications"** by Kathleen A. McCormick.

## Course Title: **Pharmacology II**

### Course Description

Pharmacology II builds upon the foundational principles introduced in Pharmacology I. This course delves deeper into the mechanisms of drug action, pharmacokinetics, and therapeutic applications. Students will explore specific drug classes, adverse effects, and evidence-based prescribing practices.

### Learning Objectives

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

- Explain the pharmacodynamics and pharmacokinetics of various drug classes.
- Analyze drug interactions and adverse effects.
- Apply pharmacological knowledge to patient care decisions.

### Topics Covered

1. **Specific Drug Classes:**
    - Antihypertensives, antiarrhythmics, and anticoagulants.
    - Analgesics, antimicrobials, and immunosuppressants.
2. **Pharmacokinetics:**
    - Absorption, distribution, metabolism, and elimination.
    - Drug-drug interactions and individual variability.
3. **Therapeutic Applications:**
    - Evidence-based prescribing for common medical conditions.
    - Rational drug selection and monitoring.

### Assessment

- Quizzes and exams assessing understanding of drug mechanisms and applications.
- Case studies analyzing real-world prescribing scenarios.
- Written reports on drug interactions or adverse effects.

## Recommended Reading

1. **“Pharmacology: Principles and Practice”** by Miles Hacker, William S. Messer, and Kenneth A. Bachmann.
2. **“Basic & Clinical Pharmacology”** by Bertram G. Katzung and Anthony J. Trevor.

## Course Title: **Healthcare Policy and Law**

### Course Description

This course explores the legal and policy aspects of healthcare delivery. Students will examine the regulatory framework, ethical considerations, and health policy implications relevant to physician assistants. Emphasis will be placed on understanding healthcare laws, patient rights, and the impact of policy decisions on clinical practice.

### Learning Objectives

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

- Analyze healthcare policies and their effects on patient care.
- Understand legal and ethical responsibilities in healthcare practice.
- Advocate for patient rights within legal boundaries.

### Topics Covered

1. **Introduction to Healthcare Policy:**
    - Overview of healthcare systems and policy development.
    - Role of government agencies and stakeholders.
2. **Healthcare Laws and Regulations:**
    - HIPAA (Health Insurance Portability and Accountability Act).
    - Informed consent, privacy, and confidentiality.
3. **Ethical Considerations:**
    - Medical ethics and professional conduct.
    - End-of-life decisions and patient autonomy.
4. **Health Policy Implications:**
    - Access to care, insurance, and reimbursement.
    - Impact of policy changes on healthcare delivery.

### Assessment

- Quizzes and exams assessing understanding of healthcare policy and legal concepts.
- Case studies analyzing real-world ethical dilemmas.
- Written reflections on policy implications.

### Recommended Reading

1. **“Healthcare Law and Ethics”** by Mark A. Hall and Mary Anne Bobinski.
2. **“Health Policy and Politics: A Nurse’s Guide”** by Jeri A. Milstead.

## Course Title: **Radiology**

### Course Description

This course provides foundational training in medical imaging and radiology. Students will learn about various imaging modalities, radiation safety, and the interpretation of radiographic images. Emphasis will be placed on practical skills for diagnosing and managing patients using radiological techniques.

### Learning Objectives

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

- Understand the principles of different imaging modalities (X-ray, CT, MRI, ultrasound, etc.).
- Safely operate radiographic equipment and protect patients from radiation exposure.
- Interpret radiological images to identify abnormalities and assist in patient diagnosis.

### Topics Covered

1. **Introduction to Radiology:**
    - Overview of medical imaging techniques.
    - Role of radiology in healthcare.
2. **Radiation Safety and Protection:**
    - Principles of ionizing radiation.
    - Minimizing radiation exposure to patients and healthcare workers.
3. **Imaging Modalities:**
    - X-ray radiography: principles, positioning, and image interpretation.
    - Computed tomography (CT), magnetic resonance imaging (MRI), and ultrasound.
4. **Clinical Applications:**
    - Radiological assessment of common conditions (e.g., fractures, tumors, infections).
    - Interventional radiology procedures.

### Assessment

- Quizzes and exams assessing understanding of radiological principles.
- Practical exercises in positioning patients for X-rays.
- Image interpretation assignments.

### Recommended Reading

1. **“Essentials of Radiologic Science”** by William E. Erkonen.
2. **“Radiology 101: The Basics and Fundamentals of Imaging”** by Wilbur L. Smith.

## Course Title: **Clinical Genetics**

### Course Description

This course provides foundational training in clinical genetics, focusing on the assessment, diagnosis, and management of genetic conditions. Students will explore the principles of

genetic counseling, inheritance patterns, and the impact of genetic variations on health. Emphasis will be placed on integrating genetic knowledge into patient care.

### Learning Objectives

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

- Understand the genetic basis of inherited diseases.
- Recognize common genetic disorders and their clinical manifestations.
- Apply genetic principles to patient assessment and counseling.

### Topics Covered

1. **Introduction to Clinical Genetics:**
    - Overview of genetic testing and counseling.
    - Ethical considerations in genetic medicine.
2. **Inheritance Patterns:**
    - Mendelian inheritance (autosomal dominant, autosomal recessive, X-linked).
    - Multifactorial inheritance and complex traits.
3. **Genetic Disorders:**
    - Cystic fibrosis, Down syndrome, Huntington's disease, and others.
    - Prenatal screening and diagnosis.
4. **Genetic Counseling:**
    - Communication skills for discussing genetic risk with patients.
    - Family history assessment and risk assessment tools.

### Assessment

- Quizzes and exams assessing understanding of genetic principles.
- Case studies analyzing real-world genetic scenarios.
- Role-playing exercises for genetic counseling skills.

### Recommended Reading

1. **"Medical Genetics"** by Lynn B. Jorde, John C. Carey, and Michael J. Bamshad.
2. **"Emery's Elements of Medical Genetics"** by Peter D. Turnpenny and Sian Ellard.

## Course Title: **Clinical Medicine I**

### Course Description

Clinical Medicine I is an introductory course designed to provide students with foundational knowledge in human disease. The course aims to describe the pathologic processes involved in common disorders and diseases, introduce principles of clinical medicine, and develop problem-solving skills. Students will gain essential background information needed for subsequent medical courses.

### Learning Objectives

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

- Describe the pathophysiology of common diseases.
- Understand the principles of clinical medicine and clinical problem-solving.
- Apply knowledge of disease processes to patient assessment and management.

### Topics Covered

1. **Introduction to Clinical Medicine:**
    - Overview of clinical reasoning and diagnostic approaches.
    - Role of the physician assistant in patient care.
2. **Pathologic Processes:**
    - Cellular adaptation, inflammation, and tissue repair.
    - Common disease mechanisms (e.g., infection, neoplasia, autoimmune disorders).
3. **Clinical Problem Solving:**
    - Developing differential diagnoses.
    - Utilizing evidence-based medicine in decision-making.
4. **Introduction to Physical Examination:**
    - Basic techniques for assessing patients.
    - Correlation of physical findings with disease states.

### Assessment

- Quizzes and exams assessing understanding of disease mechanisms.
- Case studies analyzing real-world patient scenarios.
- Practical exercises in physical examination skills.

### Recommended Reading

1. **"Pathophysiology: The Biologic Basis for Disease in Adults and Children"** by Kathryn L. McCance and Sue E. Huether.
2. **"Clinical Medicine: A Textbook of Clinical Skills and Diagnostic Procedures"** by Parveen Kumar and Michael L. Clark.

## Course Title: **History and Physical Diagnosis II**

### Course Description

History and Physical Diagnosis II is an advanced course that builds upon the foundational skills introduced in History and Physical Diagnosis I. Students will deepen their understanding of patient assessment techniques, refine clinical reasoning abilities, and enhance their proficiency in obtaining accurate medical histories and performing comprehensive physical examinations. Emphasis will be placed on integrating clinical findings into differential diagnoses and treatment planning.

### Learning Objectives

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

- Conduct thorough patient interviews to elicit relevant medical histories.
- Perform detailed physical examinations using appropriate techniques.
- Synthesize clinical data to develop differential diagnoses.
- Communicate effectively with patients and colleagues during the diagnostic process.

## Topics Covered

1. **Advanced History-Taking Techniques:**
    - Specialized questioning for specific symptoms (e.g., pain, fatigue, neurological complaints).
    - Cultural competence in patient interviews.
2. **Physical Examination Skills:**
    - Advanced techniques for assessing various body systems (e.g., cardiovascular, respiratory, musculoskeletal).
    - Interpretation of physical findings.
3. **Clinical Reasoning and Differential Diagnosis:**
    - Integration of history and examination data.
    - Recognizing red flags and urgent clinical presentations.
4. **Patient Communication and Professionalism:**
    - Breaking bad news.
    - Collaborating with other healthcare providers.

## Assessment

- Objective Structured Clinical Examinations (OSCEs) assessing history-taking and physical examination skills.
- Case-based assessments requiring differential diagnoses and treatment plans.
- Written reflections on patient encounters.

## Recommended Reading

1. **"Bates' Guide to Physical Examination and History Taking"** by Lynn S. Bickley.
2. **"Clinical Medicine: A Textbook of Clinical Skills and Diagnostic Procedures"** by Parveen Kumar and Michael L. Clark.

## Course Title: **Pharmacology III**

## Course Description

Pharmacology III is an advanced course that builds upon the foundational principles introduced in Pharmacology I and Pharmacology II. This course delves deeper into specific drug classes, advanced pharmacokinetics, and therapeutic applications. Students will explore evidence-based prescribing practices, drug interactions, and adverse effects.

## Learning Objectives

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

- Explain the pharmacodynamics and pharmacokinetics of specialized drug classes.
- Analyze drug interactions and adverse effects.
- Apply advanced pharmacological knowledge to patient care decisions.

## Topics Covered

1. **Advanced Drug Classes:**
    - Antineoplastic agents, immunosuppressants, and biologics.

    - Pharmacogenomics and personalized medicine.
2. **Advanced Pharmacokinetics:**
    - Clearance concepts (renal, hepatic, and non-renal).
    - Drug interactions and cytochrome P450 enzymes.
3. **Therapeutic Applications:**
    - Evidence-based prescribing for complex medical conditions.
    - Rational drug selection in special populations (pediatrics, geriatrics).
4. **Adverse Effects and Monitoring:**
    - Recognizing and managing drug-related complications.
    - Therapeutic drug monitoring.

### Assessment

- Quizzes and exams assessing understanding of specialized drug mechanisms.
- Case studies analyzing real-world prescribing scenarios.
- Written reports on drug interactions or adverse effects.

### Recommended Reading

1. **"Pharmacotherapy: A Pathophysiologic Approach"** by Joseph T. DiPiro et al.
2. **"Goodman & Gilman's The Pharmacological Basis of Therapeutics"** by Laurence L. Brunton et al.

## Course Title: **PA Seminar**

### Course Description

PA Seminar is a comprehensive course designed to integrate and reinforce the knowledge and skills acquired throughout the physician assistant program. Students will engage in interactive discussions, case-based learning, and professional development activities. The seminar aims to enhance clinical reasoning, communication, and teamwork abilities essential for successful practice as a physician assistant.

### Learning Objectives

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

- Apply critical thinking and evidence-based approaches to patient care.
- Communicate effectively with patients, colleagues, and other healthcare professionals.
- Reflect on professional growth and lifelong learning.

### Topics Covered

1. **Clinical Case Discussions:**
    - Complex patient scenarios requiring integration of medical knowledge.
    - Differential diagnoses and treatment planning.
2. **Professional Development:**
    - Resume building, job search strategies, and interview skills.
    - Licensing, certification, and continuing education requirements.
3. **Ethical and Legal Considerations:**
    - Informed consent, patient autonomy, and end-of-life decisions.
    - Liability and malpractice awareness.

4. **Interprofessional Collaboration:**
    - Effective teamwork in healthcare settings.
    - Role of physician assistants within interdisciplinary teams.

### Assessment

- Participation in case discussions and seminars.
- Written reflections on ethical dilemmas and professional growth.
- Mock interviews and resume critiques.

### Recommended Reading

1. **"Physician Assistant Review"** by Patrick C. Auth and Donald A. Pedersen.
2. **"The Physician Assistant Student's Guide to the Clinical Year"** by Jessica M. Dehn and Karen M. Keast.

## Course Title: **Procedural Clinical Skills**

### Course Description

The Procedural Clinical Skills course focuses on developing essential hands-on skills required for clinical practice as a physician assistant. Students will learn and practice various procedures commonly encountered in healthcare settings. Emphasis will be placed on safety, precision, and effective communication during procedural interventions.

### Learning Objectives

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

- Demonstrate proficiency in performing a range of clinical procedures.
- Understand indications, contraindications, and potential complications associated with each procedure.
- Communicate effectively with patients during procedural encounters.

### Topics Covered

1. **Basic Clinical Procedures:**
    - Venipuncture and intravenous catheter insertion.
    - Wound care and suturing techniques.
    - Urinary catheterization.
2. **Advanced Procedures:**
    - Arterial blood gas sampling.
    - Lumbar puncture (spinal tap).
    - Joint injections.
3. **Emergency Procedures:**
    - Cardiopulmonary resuscitation (CPR).
    - Airway management (bag-mask ventilation, intubation).
4. **Communication and Informed Consent:**
    - Explaining procedures to patients.
    - Obtaining informed consent.

## Assessment

- Practical skills assessments for each procedure.
- Objective Structured Clinical Examinations (OSCEs) to evaluate procedural competency.
- Written reflections on patient interactions during procedures.

## Recommended Reading

1. **"Clinical Procedures for Physician Assistants"** by Richard W. Dehn and David P. Asprey.
2. **"Essential Clinical Procedures"** by Richard W. Dehn and David P. Asprey.

## Course Title: **Clinical Lab Medicine**

## Course Description

Clinical Lab Medicine is a foundational course that provides an introduction to laboratory diagnostics with an emphasis on pathology, microbiology, hematology, and clinical chemistry. Students will learn about specimen handling, cost-effective diagnostic algorithms, and problem-based case scenarios. The course combines lecture-based learning with practical experience in a clinical laboratory setting.

## Learning Objectives

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

- Understand the principles of laboratory diagnostics.
- Identify common pathological conditions based on laboratory findings.
- Apply cost-effective diagnostic approaches in clinical practice.

## Topics Covered

1. **Introduction to Laboratory Medicine:**
    - Overview of laboratory testing and its role in patient care.
    - Quality control and assurance in the clinical laboratory.
2. **Pathology and Microbiology:**
    - Cellular and tissue aspects of disease.
    - Common pathological conditions (e.g., infections, neoplasms).
3. **Hematology:**
    - Blood cell morphology and function.
    - Hematological disorders (anemia, leukemia, etc.).
4. **Clinical Chemistry:**
    - Biochemical markers and their clinical significance.
    - Interpretation of laboratory results.

## Assessment

- Quizzes and exams assessing understanding of laboratory principles.
- Case-based scenarios requiring diagnostic reasoning.
- Practical exercises in specimen handling and laboratory techniques.

## Recommended Reading

1. **“Clinical Laboratory Hematology”** by Shirlyn B. McKenzie and Lynne Williams.
2. **“Clinical Chemistry: Principles, Techniques, Correlations”** by Michael L. Bishop and Edward P. Fody.

## Course Title: **Diagnostic Imaging**

### Course Description

The Diagnostic Imaging course provides foundational knowledge and practical skills related to medical imaging techniques commonly used in clinical practice. Students will learn about various imaging modalities, their indications, and interpretation of imaging findings. Emphasis will be placed on safety, patient communication, and evidence-based utilization of imaging studies.

### Learning Objectives

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

- Understand the principles and applications of different imaging modalities (X-ray, CT, MRI, ultrasound, etc.).
- Interpret radiographic images to identify normal and abnormal findings.
- Communicate effectively with patients during imaging procedures.

### Topics Covered

1. **Introduction to Diagnostic Imaging:**
    - Overview of medical imaging techniques.
    - Radiation safety and patient positioning.
2. **Radiographic Imaging:**
    - X-ray principles, anatomy, and common projections.
    - Interpretation of chest X-rays and skeletal radiographs.
3. **Computed Tomography (CT) and Magnetic Resonance Imaging (MRI):**
    - CT scan protocols and contrast administration.
    - MRI sequences and tissue contrast.
4. **Ultrasound and Nuclear Medicine:**
    - Ultrasound principles and applications.
    - Basics of nuclear medicine imaging.

### Assessment

- Quizzes and exams assessing understanding of imaging principles.
- Image interpretation exercises.
- Practical assessments in patient positioning and communication during imaging procedures.

### Recommended Reading

1. **“Essentials of Radiologic Science”** by William E. Erkonen.
2. **“Radiology 101: The Basics and Fundamentals of Imaging”** by Wilbur L. Smith.

## Course Title: **Advanced Gross Anatomy**

### Course Description

The Advanced Gross Anatomy course builds upon foundational anatomical knowledge and provides an in-depth exploration of human anatomy. Students will study anatomical structures, relationships, and variations relevant to clinical practice. Emphasis will be placed on applied anatomy, radiological correlations, and surgical considerations.

### Learning Objectives

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

- Demonstrate a comprehensive understanding of human anatomy.
- Identify anatomical structures in radiographic images and clinical scenarios.
- Apply anatomical knowledge to patient assessment and procedural planning.

### Topics Covered

1. **Regional Anatomy:**
    - Detailed study of specific body regions (e.g., head and neck, thorax, abdomen, pelvis, extremities).
    - Surgical landmarks and approaches.
2. **Applied Anatomy:**
    - Correlations between anatomical structures and clinical presentations.
    - Radiological anatomy (CT, MRI, X-rays).
3. **Neuroanatomy:**
    - Central nervous system (brain and spinal cord) and peripheral nerves.
    - Cranial nerves and their functions.
4. **Cadaver Dissection and Prosections:**
    - Hands-on exploration of anatomical structures.
    - Identification of variations and anomalies.

### Assessment

- Practical examinations assessing anatomical knowledge and dissection skills.
- Case-based assessments requiring anatomical reasoning.
- Written reports on anatomical variations or clinical applications.

### Recommended Reading

1. **“Grant’s Atlas of Anatomy”** by Anne M. R. Agur and Arthur F. Dalley.
2. **“Netter’s Clinical Anatomy”** by John T. Hansen.

## Course Title: **Clinical Medicine III**

### Course Description

Clinical Medicine III is an advanced didactic course that builds upon the foundational knowledge acquired in previous clinical medicine courses. This course focuses on in-depth

exploration of specific medical specialties and conditions. Students will study pathophysiology, diagnostic approaches, and evidence-based management strategies. Emphasis will be placed on integrating clinical reasoning and practical skills for patient care.

### Learning Objectives

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

- Demonstrate advanced understanding of specific medical specialties (e.g., gastroenterology, orthopedics, obstetrics, rheumatology).
- Apply clinical reasoning to complex patient cases.
- Develop evidence-based treatment plans.

### Topics Covered

1. **Gastroenterology:**
    - Disorders of the gastrointestinal tract (e.g., inflammatory bowel disease, liver diseases).
    - Diagnostic tests (endoscopy, imaging) and treatment options.
2. **Orthopedics and Rheumatology:**
    - Musculoskeletal conditions (e.g., fractures, arthritis, soft tissue injuries).
    - Physical examination techniques and joint injections.
3. **Obstetrics and Gynecology:**
    - Pregnancy-related conditions (e.g., prenatal care, complications).
    - Women's health issues (e.g., contraception, menopause).
4. **Pediatrics and Geriatrics:**
    - Common pediatric illnesses (e.g., respiratory infections, developmental milestones).
    - Geriatric syndromes (e.g., falls, cognitive decline).

### Assessment

- Quizzes and exams assessing specialty-specific knowledge.
- Case-based discussions and problem-solving exercises.
- Written reports on evidence-based treatment plans.

### Recommended Reading

1. **"Current Medical Diagnosis & Treatment"** by Maxine A. Papadakis and Stephen J. McPhee.
2. **"Harrison's Principles of Internal Medicine"** by J. Larry Jameson et al.

## Course Title: **Hospital Practice**

### Course Description

The Hospital Practice course provides students with practical experience in a hospital setting. Students will learn about the dynamics of hospital-based patient care, interdisciplinary collaboration, and the role of physician assistants within the hospital environment. Emphasis will be placed on clinical skills, professionalism, and evidence-based practice.

## Learning Objectives

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

- Understand the structure and function of hospitals.
- Apply clinical skills in a hospital context.
- Collaborate effectively with healthcare teams.

## Topics Covered

1. **Hospital Organization and Policies:**
    - Hospital administration and governance.
    - Legal and ethical considerations in hospital practice.
2. **Clinical Rotations:**
    - Inpatient medicine (general medicine, subspecialties).
    - Surgical services (preoperative, intraoperative, postoperative care).
3. **Patient Assessment and Management:**
    - Admissions, discharges, and daily rounds.
    - Interpreting laboratory results and diagnostic tests.
4. **Professionalism and Communication:**
    - Effective communication with patients, families, and colleagues.
    - Time management and prioritization.

## Assessment

- Clinical evaluations during hospital rotations.
- Case presentations and patient write-ups.
- Reflective journals on professional growth.

## Recommended Reading

1. **"Hospital Medicine: Just the Facts"** by Sylvia McKean and John J. Ross.
2. **"The Hospitalist Manual"** by Wachter, Goldman, and Hollander.

## Course Title: Society and Behavioral Medicine

## Course Description:

This course explores the intersection of social, psychological, and behavioral factors in healthcare. Students will gain insights into how individual behaviors, cultural contexts, and societal influences impact health outcomes. Topics include health disparities, patient communication, health promotion, and ethical considerations.

## Learning Objectives:

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

1. **Analyze** the impact of social determinants on health.
2. **Apply** behavioral theories to patient care.
3. **Demonstrate** effective communication skills with diverse patient populations.

4. **Evaluate** ethical dilemmas related to behavioral interventions in healthcare.

### Topics Covered:

1. **Social Determinants of Health:**
    - Income, education, race, and access to healthcare
    - Health disparities and their implications
2. **Behavioral Theories and Models:**
    - Health belief model
    - Social cognitive theory
    - Transtheoretical model
3. **Patient Communication:**
    - Effective interviewing techniques
    - Cultural competence
    - Shared decision-making
4. **Health Promotion and Behavior Change:**
    - Strategies for promoting healthy behaviors
    - Motivational interviewing
    - Behavior modification techniques
5. **Ethical Considerations:**
    - Autonomy, beneficence, and non-maleficence
    - Informed consent
    - Confidentiality and privacy

### Assessment:

- **Quizzes and Exams:** Assess understanding of course material.
- **Case Studies:** Apply concepts to real-world scenarios.
- **Group Projects:** Collaborate on health promotion initiatives.
- **Class Participation:** Engage in discussions and activities.

### Recommended Reading:

1. **“Health Behavior and Health Education: Theory, Research, and Practice”** by Karen Glanz, Barbara K. Rimer, and K. Viswanath.
2. “Social Determinants of Health: The Solid Facts” by World Health Organization.

## Course Title: Professional Practice I

### Course Description:

“Professional Practice I” provides foundational knowledge and skills essential for physician assistants. This course focuses on the integration of medical, behavioral, and social sciences, emphasizing patient assessment, health policy, and professional practice issues. Students gain practical experience through supervised clinical practice.

### Learning Objectives:

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

1. **Apply** basic medical and behavioral principles to patient care.
2. **Assess** patients effectively, considering cultural and contextual factors.

3. **Understand** health policy and its impact on healthcare delivery.
4. **Navigate** ethical and professional challenges in clinical practice.

Topics Covered:

1. **Introduction to Clinical Medicine:**
    - Medical history taking
    - Physical examination techniques
2. **Patient Assessment:**
    - Diagnostic reasoning
    - Clinical decision-making
3. **Health Policy and Advocacy:**
    - Healthcare systems and policies
    - Advocacy for patient rights
4. **Professional Practice Issues:**
    - Scope of practice
    - Interprofessional collaboration

Assessment:

- **Clinical Practice Experience:** Supervised hands-on learning in healthcare settings.
- **Case Studies:** Apply theoretical knowledge to practical scenarios.
- **Policy Analysis:** Evaluate healthcare policies and their implications.

Recommended Reading:

**1.** "Physician Assistant: A Guide to Clinical Practice" **by Ruth Ballweg et al..**
2. "Health Policy and Politics: A Nurse's Guide" **by** Milstead and Short.

Course Title: Clinical Integration

Course Description:

"Clinical Integration" represents the culmination of didactic and clinical phases in the physician assistant program. This course emphasizes the practical application of medical knowledge, patient care skills, and professional competencies. Students engage in supervised clinical rotations to integrate theory with real-world practice.

Learning Objectives:

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

1. **Integrate** and apply medical principles in a supervised, delegated team model.
2. **Provide** culturally and contextually appropriate healthcare for rural, remote, tropical, and Aboriginal and Torres Strait Islander populations.

Topics Covered:

1. **Clinical Rotations:**
    - Family medicine
    - Pediatrics
    - Geriatrics
    - Internal medicine

    - Surgery
    - Emergency medicine
    - Psychiatry
2. **Patient Assessment and Management:**
    - Eliciting medical histories
    - Conducting physical examinations
    - Diagnosing illnesses
    - Treatment planning
3. **Professional Competencies:**
    - Ethical practice
    - Interprofessional collaboration
    - Communication skills

### Assessment:

- **Clinical Rotations:** Practical experience in diverse healthcare settings.
- **Case Presentations:** Apply theoretical knowledge to patient scenarios.
- **Professional Competency Assessments:** Evaluate communication, teamwork, and ethical decision-making.

### Recommended Reading:

1. "Physician Assistant: A Guide to Clinical Practice**"** by Ruth Ballweg et al.
2. **"**Health Policy and Politics: A Nurse's Guide**"** by Milstead and Short.

## Course Title: Clinical Research Methods

### Course Description:

The "Clinical Research Methods" course equips students with essential skills for conducting high-quality clinical research. It focuses on foundational concepts in biostatistics, epidemiology, and evidence evaluation. Students learn to design, implement, and critically assess clinical research studies.

### Learning Objectives:

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

1. **Understand and apply** foundational concepts of biostatistics and epidemiology.
2. **Develop** research questions and formulate testable hypotheses.
3. **Design and begin to implement** a clinical research study.
4. **Cultivate the skills** required to present research findings.

### Topics Covered:

1. **Biostatistics:**
    - Descriptive statistics
    - Inferential statistics
    - Data analysis using software (e.g., Stata)
2. **Epidemiology:**
    - Study designs (observational, experimental)
    - Measures of disease frequency

    - Risk assessment
3. **Research Question Development:**
    - Framing research questions
    - Hypothesis formulation
4. **Critical Assessment of Medical Literature:**
    - Evaluating research articles
    - Understanding study limitations

Assessment:

- **Research Proposal:** Develop a research question and study design.
- **Class Participation:** Engage in discussions and peer review.
- **Statistical Exercises:** Apply biostatistical concepts.

Recommended Reading:

1. Foundations of Clinical Research" by Harvard Medical School.
2. **"Medical Research Methodology"** by Alan E. Kazdin.

Course Title: Pediatrics

Course Description:

The "Pediatrics" course focuses on the care of infants, children, and adolescents. Students learn to evaluate common pediatric problems, offer preventive care, and interpret treatment plans for their patients' guardians.

Learning Objectives:

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

1. **Assess** pediatric patients effectively, considering developmental stages.
2. **Diagnose** and manage common pediatric illnesses.
3. **Provide** age-appropriate health education to patients and families.

Topics Covered:

1. **Growth and Development:**
    - Milestones (physical, cognitive, social)
    - Pediatric assessment techniques
2. **Common Pediatric Conditions:**
    - Respiratory infections
    - Gastrointestinal disorders
    - Immunizations
3. **Preventive Care:**
    - Well-child visits
    - Nutrition and growth monitoring
4. **Pediatric Emergencies:**
    - Fever management
    - Allergic reactions
    - Pediatric resuscitation

Assessment:

- **Clinical Case Studies:** Apply theoretical knowledge to practical scenarios.
- **Pediatric Simulations:** Practice skills in simulated patient encounters.
- **Written Exams:** Assess understanding of pediatric concepts.

Recommended Reading:

1. **"Nelson Textbook of Pediatrics"** by Robert M. Kliegman et al.
2. **"Pediatric Primary Care"** by Catherine E. Burns et al.

Course Title: Internal Medicine

Course Description:

The "Internal Medicine" course provides foundational knowledge in the diagnosis, management, and treatment of adult patients with medical conditions. Students learn to assess common internal medicine problems, interpret diagnostic tests, and collaborate with healthcare teams.

Learning Objectives:

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

1. **Evaluate** adult patients with internal medicine concerns.
2. **Interpret** laboratory results and imaging studies.
3. **Develop** evidence-based treatment plans.

Topics Covered:

1. **Common Medical Conditions:**
    - Hypertension
    - Diabetes
    - Hyperlipidemia
    - Heart failure
2. **Diagnostic Approaches:**
    - History-taking and physical examination
    - Laboratory tests (CBC, CMP, lipid panel)
    - Radiology (X-rays, CT scans)
3. **Treatment Strategies:**
    - Pharmacotherapy (antihypertensives, antidiabetic agents)
    - Lifestyle modifications (diet, exercise)
    - Patient education

Assessment:

- **Case Studies:** Apply theoretical knowledge to clinical scenarios.
- **Clinical Rotations:** Gain practical experience in internal medicine settings.
- **Written Exams:** Assess understanding of internal medicine concepts.

Recommended Reading:

1. **“Harrison’s Principles of Internal Medicine”** by Dennis L. Kasper et al.
2. **“Current Medical Diagnosis and Treatment”** by Maxine A. Papadakis et al.

Course Title: Obstetrics and Gynaecology

Course Description:

The “Obstetrics and Gynaecology” course focuses on women’s health, pregnancy, and reproductive medicine. Students learn to manage both obstetric and gynaecologic conditions, emphasizing preventive care, diagnosis, and treatment.

Learning Objectives:

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

1. **Assess** female patients across the lifespan, from adolescence to menopause.
2. **Provide** prenatal care, including antenatal visits and monitoring.
3. **Diagnose and manage** common gynaecologic conditions (e.g., menstrual disorders, pelvic pain, contraception).
4. **Understand** labor and delivery processes.

Topics Covered:

1. **Prenatal Care:**
    - Antenatal visits
    - Fetal development
    - High-risk pregnancies
2. **Gynecologic Conditions:**
    - Menstrual disorders (dysmenorrhea, menorrhagia)
    - Pelvic inflammatory disease
    - Endometriosis
3. **Labor and Delivery:**
    - Stages of labor
    - Obstetric emergencies
    - Postpartum care
4. **Contraception and Family Planning:**
    - Birth control methods
    - Counseling on family planning options

Assessment:

- **Clinical Rotations:** Gain practical experience in obstetrics and gynecology settings.
- **Case Studies:** Apply theoretical knowledge to patient scenarios.
- **Written Exams:** Assess understanding of course material.

Recommended Reading:

1. **“Williams Obstetrics”** by F. Gary Cunningham et al.
2. **“Comprehensive Gynecology”** by Gretchen M. Lentz et al.

## Course Title: Professional Practice II

## Course Description:

"Professional Practice II" builds upon foundational knowledge and clinical skills acquired in earlier coursework. This course focuses on advanced patient assessment, diagnostic reasoning, and evidence-based practice. Students engage in supervised clinical experiences to refine their clinical competencies.

## Learning Objectives:

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

1. **Enhance** clinical reasoning skills for complex patient cases.
2. **Apply** evidence-based guidelines to patient management.
3. **Collaborate** effectively with interdisciplinary healthcare teams.

## Topics Covered:

1. **Advanced Patient Assessment:**
    - Comprehensive history-taking
    - Advanced physical examination techniques
    - Differential diagnosis
2. **Evidence-Based Practice:**
    - Critical appraisal of medical literature
    - Incorporating research findings into clinical decision-making
3. **Clinical Specialties:**
    - Cardiology
    - Neurology
    - Pulmonology
    - Rheumatology
4. **Interprofessional Collaboration:**
    - Team dynamics
    - Communication in complex cases

## Assessment:

- **Clinical Rotations:** Apply advanced skills in specialty areas.
- **Case Presentations:** Analyze complex patient scenarios.
- **Evidence-Based Projects:** Develop clinical guidelines based on research.

## Recommended Reading:

1. **"Current Medical Diagnosis and Treatment"** by Maxine A. Papadakis et al.
2. "Evidence-Based Physical Diagnosis" by Steven McGee.

## Course Title: Graduate Project I

### Course Description:

"Graduate Project I" is designed to guide students through the process of developing a research or clinical project. Students will explore relevant topics, formulate research questions, and begin planning their project. Emphasis is placed on critical thinking, literature review, and project design.

### Learning Objectives:

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

1. **Formulate** a clear research question or clinical project topic.
2. **Conduct** a comprehensive literature review related to their project.
3. **Design** a research proposal or project plan.

### Topics Covered:

1. **Project Selection:**
    - Identifying relevant research areas
    - Defining project scope
2. **Literature Review:**
    - Searching databases for relevant studies
    - Evaluating existing research
3. **Research Proposal or Project Plan:**
    - Developing a hypothesis (for research projects)
    - Outlining project objectives and methods

### Assessment:

- **Project Proposal:** Submit a well-defined research proposal or project plan.
- **Literature Review Presentation:** Present findings from the literature review.
- **Peer Feedback and Revision:** Engage in peer review and refine project ideas.

### Recommended Reading:

1. **"Research Design: Qualitative, Quantitative, and Mixed Methods Approaches"** by John W. Creswell.
2. **"How to Read a Paper: The Basics of Evidence-Based Medicine"** by Trisha Greenhalgh.

## Course Title: Emergency Medicine

### Course Description:

The "Emergency Medicine" course prepares students to provide expert patient care in high-stress environments, both in emergency departments (EDs) and combat support hospitals. Students learn to stabilize critically ill or injured patients, perform emergent procedures, and manage a wide range of medical and traumatic presentations.

### Learning Objectives:

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

1. **Assess and manage** emergent medical and surgical cases.
2. **Perform** bedside procedures under pressure.
3. **Collaborate** effectively in ED or combat settings.

### Topics Covered:

1. **Trauma Resuscitation:**
    - Rapid assessment
    - Hemorrhage control
    - Airway management
2. **Medical Emergencies:**
    - Cardiac emergencies
    - Respiratory distress
    - Neurological emergencies
3. **Procedures:**
    - Central line placement
    - Chest tube insertion
    - Fracture reduction

### Assessment:

- **Clinical Rotations:** Apply skills in real-world scenarios.
- **Case Studies:** Analyze complex patient presentations.
- **Performance Evaluations:** Assess procedural competency.

### Recommended Reading:

1. **"Emergency Medicine Secrets"** by Vincent J. Markovchick et al.
2. **"Tintinalli's Emergency Medicine: A Comprehensive Study Guide"** by Judith E. Tintinalli et al.

## Course Title: Surgery

### Course Description:

The "Surgery" course focuses on the principles and practice of surgical medicine. Students learn about surgical techniques, perioperative care, and collaboration within surgical teams. The course emphasizes both theoretical knowledge and practical skills.

### Learning Objectives:

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

1. **Understand** the surgical process from preoperative assessment to postoperative management.
2. **Assist** in surgical procedures, including sterile techniques and instrument handling.
3. **Recognize and manage** common surgical complications.

Topics Covered:

1. **Preoperative Care:**
    - Patient evaluation
    - Informed consent
    - Surgical risk assessment
2. **Intraoperative Techniques:**
    - Aseptic practices
    - Surgical instruments
    - Suturing and wound closure
3. **Postoperative Management:**
    - Pain management
    - Wound care
    - Complication prevention
4. **Specialty Surgeries:**
    - General surgery
    - Orthopedic surgery
    - Cardiothoracic surgery
    - Neurosurgery

Assessment:

- **Clinical Rotations:** Observe and participate in surgical procedures.
- **Case Studies:** Analyze surgical scenarios and decision-making.
- **Skills Assessments:** Demonstrate proficiency in suturing and wound care.

Recommended Reading:

1. **"Essentials of General Surgery"** by Peter F. Lawrence et al.
2. **"Surgical Recall"** by Lorne H. Blackbourne.

Course Title: Orthopedics

Course Description:

The "Orthopedics" course provides foundational knowledge and practical skills related to musculoskeletal conditions. Students learn about orthopedic trauma, joint diseases, and surgical interventions. The course emphasizes clinical assessment, radiology interpretation, and evidence-based management.

Learning Objectives:

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

1. **Evaluate** patients with orthopedic complaints.
2. **Interpret** radiographs and other imaging modalities.
3. **Understand** common orthopedic conditions and treatment options.

Topics Covered:

1. **Musculoskeletal Trauma:**

    - Initial management of trauma
    - Fracture complications
    - Specific fractures (e.g., femoral neck, wrist, ankle)
2. **Joint Diseases:**
    - Osteoarthritis (hip, knee, shoulder, finger)
    - Inflammatory arthritis (rheumatoid arthritis, seronegative spondarthritis)
    - Crystal arthritis (gout, pseudogout)
3. **Infection:**
    - Septic arthritis
    - Osteomyelitis
4. **Diseases of the Bone:**
    - Osteoporosis
    - Osteomalacia and rickets
    - Paget's disease
5. **Malignancy:**
    - Metastatic bone disease
    - Multiple myeloma
    - Primary bone tumors
6. **Back and Neck Pain:**
    - Lumbar spine pathology
    - Cervical spine pathology

### Assessment:

- **Clinical Rotations:** Apply knowledge in orthopedic clinics and surgical settings.
- **Case Studies:** Analyze patient scenarios.
- **Skills Assessments:** Demonstrate examination techniques and radiology interpretation.

### Recommended Reading:

1. **"Essentials of Orthopedics"** by John J. Callaghan et al.
2. **"Orthopedic Physical Assessment"** by David J. Magee.

## Course Title: Professional Practice III

### Course Description:

"Professional Practice III" builds upon foundational knowledge and clinical skills acquired in earlier coursework. This course focuses on advanced patient assessment, diagnostic reasoning, and evidence-based practice. Students engage in supervised clinical experiences to refine their clinical competencies.

### Learning Objectives:

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

1. **Enhance** clinical reasoning skills for complex patient cases.
2. **Apply** evidence-based guidelines to patient management.
3. **Collaborate** effectively in clinical settings.

Topics Covered:

1. **Advanced Patient Assessment:**
    - Comprehensive history-taking
    - Advanced physical examination techniques
    - Differential diagnosis
2. **Evidence-Based Practice:**
    - Critical appraisal of medical literature
    - Incorporating research findings into clinical decision-making
3. **Clinical Specialties:**
    - Cardiology
    - Neurology
    - Pulmonology
    - Rheumatology

Assessment:

- **Clinical Rotations:** Apply skills in specialty areas.
- **Case Studies:** Analyze complex patient scenarios.
- **Evidence-Based Projects:** Develop clinical guidelines based on research.

Recommended Reading:

1. **"Current Medical Diagnosis and Treatment"** by Maxine A. Papadakis et al.
2. **"Evidence-Based Physical Diagnosis"** by Steven McGee.

Course Title: Family Medicine

Course Description:

The "Family Medicine" course focuses on comprehensive primary care for patients across the lifespan. Students learn about preventive medicine, chronic disease management, and health promotion within family practice settings.

Learning Objectives:

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

1. **Assess and manage** common acute and chronic conditions in family medicine.
2. Understand **preventive care guidelines** and health maintenance.
3. Develop effective **communication skills** for patient education.

Topics Covered:

1. **Well-Child Visits:**
    - Growth and development assessments
    - Immunizations
    - Pediatric health promotion
2. **Adult Preventive Screenings:**
    - Cancer screenings (breast, cervical, colorectal)
    - Cardiovascular risk assessment
    - Mental health screenings
3. **Chronic Disease Management:**

    - Hypertension
    - Diabetes
    - Asthma
4. **Geriatric Care:**
    - Polypharmacy
    - Falls prevention
    - End-of-life discussions

Assessment:

- **Clinical Rotations:** Apply knowledge in family medicine clinics.
- **Case Studies:** Analyze patient scenarios.
- **Written Exams:** Assess understanding of course material.

Recommended Reading:

1. **"Family Medicine: Principles and Practice"** by Robert B. Taylor.
2. **"Current Medical Diagnosis and Treatment"** (relevant sections) by Maxine A. Papadakis et al…

Course Title: Elective Rotation

Course Description:

The "Elective Rotation" course allows students to explore specialized areas of interest within the field of medicine. Students select elective rotations based on their career goals and clinical interests.

Learning Objectives:

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

1. Gain exposure to a specific medical specialty or subspecialty.
2. Apply knowledge and skills acquired during the didactic phase to real-world clinical scenarios.
3. Collaborate with healthcare teams in diverse clinical settings.

Topics Covered:

1. **Specialty-Specific Rotations:**
    - Dermatology
    - Radiology
    - Orthopedics
    - Cardiology
    - Neurology
    - And more, based on student preferences
2. **Clinical Skills Development:**
    - Specialty-specific examination techniques
    - Interpretation of relevant diagnostic tests
    - Treatment modalities
3. **Interprofessional Collaboration:**
    - Working with physicians, nurses, and other healthcare professionals

- Participating in interdisciplinary rounds

Assessment:

- **Clinical Rotations:** Apply knowledge and skills in real-world settings.
- **Case Presentations:** Discuss patient encounters and management strategies.
- **Preceptor Evaluations:** Assess clinical performance and professionalism.

Recommended Reading:

- Specialty-specific tbooks, and research articles relevant to the chosen elective rotation.

Course Title: Graduate Project II

Course Description:

The “Graduate Project II” course provides an opportunity for students to apply their knowledge and skills acquired throughout the program. Students engage in an in-depth project related to a specific area of interest within healthcare or medicine. The course emphasizes research, critical thinking, and practical application.

Learning Objectives:

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

1. **Design and execute** a substantial project relevant to physician assistant practice.
2. **Analyze and interpret** data or information related to their chosen project.
3. **Communicate findings** effectively through written reports or presentations.

Topics Covered:

1. **Project Proposal and Planning:**
   - Defining the project scope and objectives
   - Literature review and background research
2. **Data Collection and Analysis:**
   - Gathering relevant data (clinical, survey, or other)
   - Applying appropriate statistical or qualitative methods
3. **Project Implementation:**
   - Executing the project plan
   - Addressing any challenges or modifications
4. **Presentation and Dissemination:**
   - Creating a final report or presentation
   - Sharing findings with peers, faculty, or relevant stakeholders

Assessment:

- **Project Proposal:** Develop a clear and feasible project proposal.
- **Project Implementation:** Execute the project plan and collect data.
- **Final Presentation or Report:** Communicate project findings effectively.

Recommended Reading:

1. **"Research Design: Qualitative, Quantitative, and Mixed Methods Approaches"** by John W. Creswell
2. **"How to Write and Publish a Scientific Paper"** by Robert A. Day and Barbara Gastel

**CAPITAL OPERATIONAL BUDGET FOR BACHELOR OF SCIENCE: PHYSICIAN ASSISTANT STUDIES**

The programme budget is shown in the table below:

| **Capital Operational Budget for the Bachelor of Science: Physician Assistant Studies**<br>**This budget projection calculation is based on forty students per year, covering two semesters, at a cost of R52,000 per student.** | | | | | |
|---|---|---|---|---|---|
| **Description** | **2023** | **2024** | **2025** | **2026** | **TOTAL** |
| Equity Financing | 7554354 | - | - | - | 7554354 |
| BSc – Physician Assistant Studies | 2008890 | 12953250 | 14407650 | 19861650 | 49231440 |
| Other | 152712 | 192708 | 254520 | 363600 | 963 540 |
| **TOTAL** | **9715956** | **13145958** | **14662170** | **20225250** | **57749334** |
| | | | | | |
| **Expenditure** | | | | | |
| Administrative Costs | 690190 | 1090800 | 1090800 | 1090800 | 3962589 |
| Salaries and Wages | 767876 | 236340 | 236340 | 236340 | 1476896 |
| Equipment Costs | 1524073 | 363600 | 363600 | 363600 | 2614873 |
| Operating Costs | 1088626 | 501768 | 501768 | 501768 | 2593930 |
| Research, Training & Workshops | 435451 | 73811 | 73811 | 73811 | 656883 |
| Construction and Infrastructure | 2177248 | 545400 | 545400 | 545400 | 3813448 |
| Marketing and Studio Recording | 217728 | 36724 | | 36724 | 291175 |
| Travelling and Accommodation | 653175 | 491587 | 491587 | 491587 | 2127936 |
| Vehicles | - | 653171 | | 363600 | 1016771 |
| Other Expenses | 653175 | 93700 | 93700 | 93700 | 934 274 |
| **TOTAL** | **8207539** | **4086900** | **3397006** | **3797329** | **19488775** |
| **Repayment** | | | | | |
| Equity and Dividend Payments | 1888590 | 1888590 | 1888590 | 1888590 | 7554358 |
| Interest - 18% | 339948 | 339948 | 339948 | 339948 | 1359792 |
| Charges and Accounting | 66859 | 66859 | 66859 | 66859 | 267435 |
| **TOTAL** | 2295396 | 2295396 | 2295396 | 2295396 | 9181584 |
| Total Income | 9715956 | 13145958 | 14662170 | 20225250 | 57749334 |
| Total Expenditure | 10502935 | 6382296 | 5692402 | 6092725 | 28670358 |
| B/Forward | -786979 | 6763662 | 8969768 | 14132525 | 29078976 |
| B/ Down | -786979 | 6763662 | 8969768 | 14132525 | 29078976 |

# Join Our Celestial Journey Illuminating Minds, Igniting Innovation. Be Part of the Spark as we Unlock the Universe's Secrets, One Equation at a Time

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# Research Beyond Boundaries

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