



TABLE OF CONTENTS
SCHOOL OF PHARMACY

		Prerequisite	Credits	Page No.
FIRST TRIMESTER				
PRE-101	English I	None	3	3
PRE-102	General Chemistry I	None	4	7
PRE-103	Environmental Science	None	3	10
PRE-104	General Biology	None	5	14
PRE-105	Mathematical Reasoning I	None	4	18
PRE-106	Introduction to Sociology	None	3	20
PRE-107	French I	None	3	25
PRE-108	Orientation	None	1	27
PRE-109	Sport and Culture	None	1	29
SECOND TRIMESTER				
PRE-201	English II	PRE-101	3	31
PRE-202	General Chemistry II	PRE-102	4	36
PRE-203	Basic Physics I	PRE-103	4	38
PRE-204	Cellular Biology	PRE-104	4	40
PRE-205	Mathematical Reasoning II	PRE-105	4	43
PRE-206	Universal History	None	3	46
PRE-207	French II	PRE-107	3	52
THIRD TRIMESTER				
PRE-301	English III	PRE-201	3	54
PRE-302	Organic Chemistry I	PRE-202	6	58
PRE-303	Basic Physics II	PRE-203	4	60
PRE-304	General Psychology	None	3	62
PRE-305	Intro to Computer Info Systems	None	2	64
PRE-306	African History	PRE-206	3	66
PRE-307	French III	PRE-207	3	72
FOURTH TRIMESTER				
PRE-401	Medical Terminology	PRE-301	4	75
PRE-402	Organic Chemistry II	PRE-302	6	77
PRE-405	Leadership and Modernization Seminar	None	3	79
PRE-406	Human Relations	PRE-106	2	81
PRE-407	Scientific Methodology	None	3	83
PRP-408	Genetics	PRE-204	3	86
MBS-103	Biostatistics	PRE-205	3	88
FIFTH TRIMESTER				
PHR-101	Physical Chemistry I	PRE-402	4	90
PHR-102	Medicinal Chemistry	PRE-402	4	92
PHR-103	Bio-pharmaceutics	PRP-409	3	94
PHR-104	Introduction to Pharmacy	PRP-4XX	3	97
PRE-404	Intro to Anatomy and Physiology	PRE-204	3	99
MBS-102	Biochemistry	PRE-402	5	101



SIXTH TRIMESTER

		Prerequisite	Credits	Page No.
PHR-201	Physical Chemistry II	PHR-101	4	108
PHR-202	Pharmaceutical Biochemistry	MBS-102	3	110
PHR-203	Anatomy and Physiology	PRE-404	6	112
PHR-204	Pharmacology	PHR-102	4	114
PHR-205	Pharmaceutics	PHR-1XX	3	116
PHR-206	Introduction to Pathology	PRE-404	2	120

SEVENTH TRIMESTER

PHR-301	Pharmacotherapy I	PHR-2XX	10	122
PHR-302	Evidence Based Practice	PHR-104	3	125
PHR-303	Pharmacy Calculations	PRE-205	3	127
PHR-304	Professional Communication	PHR-104	3	129
PHR-305	Pharmaceutical Compounding	PHR-205	4	131

EIGHTH TRIMESTER

PHR-401	Pharmacotherapy II	PHR-301	10	133
PHR-402	Pharmacokinetics	PHR-303	4	136
PHR-403	Professional Development and Ethics	PHR-304	3	138
PHR-404	Healthcare Systems	PHR-3XX	2	140
PHR-405	Patient Assessment	PHR-304	4	142

NINTH TRIMESTER

PHR-501	Pharmacotherapy III	PHR-401	8	144
PHR-502	Pharmacotherapy IV	PHR-401	5	147
PHR-503	Intravenous Admixtures	PHR-303	6	150
PHR-504	Toxicology	PHR-402	3	152

TENTH TRIMESTER

PHR-601	Pharmacotherapy V	PHR-502	8	154
PHR-602	Community and Hospital Pharmacy	PHR-5XX	6	156
PHR-603	Pharmacy Regulations	PHR-5XX	6	158
PHR-604	Intro to Pharmacy Practice Exp	PHR-5XX	4	160

ELEVENTH TRIMESTER

PCR-101	Pharmacy Practice Experience	PHR-6XX	24	
---------	------------------------------	---------	----	--

TWELFTH TRIMESTER

PCR-201	Pharmacy Practice Experience	PHR-6XX	24	
---------	------------------------------	---------	----	--

PRE=Pre-professional

PRP=Pre-pharmacy

PHR=Pharmacy

PCR=Pharmacy Clinical Rotations



**ENGLISH I
(INTERMEDIATE LEVEL)
CODE: PRE-101
CREDITS: 3
PREREQUISITE: None**

DESCRIPTION OF THE COURSE:

The English language course is divided into three levels, taught during three consecutive trimesters: English I (Intermediate level), English II (High Intermediate level), and English III (Advanced level).

The syllabus is conceived so that it concentrates on the formal academic English used in lectures as well as the informal English used in normal campus life by students, professors and other college or university employees.

GENERAL OBJECTIVES:

The course objectives are:

- to enhance students' ability to read, write, speak and understand English used in college or university
- to prepare the students for successfully managing the challenges of studying at a university with courses conducted in English, focusing on proficiency in reading large amounts of scientific material, completing written assignments, exams, and projects, and delivering academic oral presentations

TEACHING METHODOLOGY:

The teaching methodology is specially designed to foster advanced skills in:

- Reading
- Listening
- Speaking
- Writing

and secondary and support skills including: grammar, vocabulary, pronunciation, spelling, note-taking, summarizing, synthesizing, making connections, outlining, skimming, scanning and mind mapping.

- Enhancement of linguistic skills (reading, speaking, and writing), for effective communication in an academic setting
- Development of students' reading skills, focusing to make reading more efficient through improving the acquirement of information from the read material and through developing critical thinking and reading to learn skills
- Training advanced reading methods, such as: pre-viewing, reading faster, using context, making inferences, skimming, scanning, making connections, summarizing, taking notes, and synthesizing
- Practice advanced listening skills and the exercise with various types of questions:
 - basic comprehension questions
 - pragmatic understanding questions
 - connecting information questions
- Developing reading and listening skills allowing efficient:
 - understanding facts and details
 - identifying main ideas
 - identifying negative facts
 - locating referents
 - understanding vocabulary in context
 - making inferences
 - determining attitude and purpose
 - understanding implication
 - paraphrasing
 - connecting content
 - understanding coherence
 - following logic
 - summarizing important points
- Improving students' speaking skills through promoting simple, correct, and organized discourse
- Developing students' capacity to correctly elaborate, both orally and in writing, complex sentence structures and use high-level vocabulary



- Training students' ability to express opinions on given topics and to provide elaborate arguments, explanations, and examples supporting their opinions, both orally and in writing
- Teach strategies to help students organize and focus their writing
- Practice with students independent and integrated writing of essays
- Revise the most important grammar points: verb tenses, nouns, pronouns, modals, parts of a sentence, verbs, prepositions, gerunds, infinitives, articles, noun clauses, adjective clauses, adverb clauses, prepositional phrases, comparatives, superlatives, conjunctions, connectives, parallel structures, word order, word forms, word choice, and redundancy.
- Train students to be comfortable and confident using a wide range of grammatical structures, to demonstrate effective use of grammar, and exhibit a high degree of automaticity, with good control of basic and complex structures, demonstrating syntactic variety, appropriate word choice, and idiomacity.
- Permanently focus developing students' vocabulary, particularly the academic, and form the students into the techniques of vocabulary development / specific vocabulary building program.
- Improve pronunciation, and train students' speaking skills (well-paced, clear, and articulate speech, with effective intonation and rhythm, supportive of the message)
- Exercise other skills as: note-taking, summarizing, paraphrasing, outlining, mind-mapping, synthesizing, skimming, and scanning, and other supportive skills for an effective English student and communicator.
- Each course unit is supplemented by grammar revisions and vocabulary enhancement sessions.

CONTENTS (Intermediate Level):

Unit 1	Advertising
Listening	Campus Conversation: Listen to a student and a professor talk about false advertising. Academic Listening: Listen to radio ads.
Reading	Essay: Read about advertising in world markets.
Speaking	Integrated Task: 1. Read about different advertising techniques. 2. Listen to a lecture about emotional appeals in ads. 3. Speak about emotional appeals in advertising.
Writing	Independent Task: Write about a product you like, and how to advertise it.
Skill focus	Skimming and Scanning: Learn how to find information quickly.
Unit 2	Extreme Sports
Listening	Campus Conversation: Listen to a student and a professor talk about parents' expectations. Academic Listening: Listen to a lecture about the personality of an extreme-sport athlete.
Reading	Newspaper Article: Read about an athlete's eating disorder.
Speaking	Independent Task: Speak about a time when you did something obsessively (sports, music, games, etc.).
Writing	Integrated Task: 1. Read the definitions of <i>obsession</i> . 2. Listen to an interview with a skateboarder. 3. Write about which definition fits the skateboarder's experience.
Skill focus	Making Inferences: Learn how to make guesses about information not stated directly.
Unit 3	Evidence-based medicine versus alternative medicine
Listening	Campus Conversation: Listen to a student and a faculty member talk about evidence-based medicine. Academic Listening: Listen to statements made by a patient that underwent alternative medicine.
Reading	Advertisement: Read about an alternative health center.
Speaking	Integrated Task: 1. Read about use of alternative medicine in advanced stage cancer patients 2. Listen to an excerpt about Evidence Based Medicine. 3. Speak about the reasons for and against alternative medicine
Writing	Independent Task: Write about an experience you have had with Evidence Based Medicine.
Skill focus	Using Context Clues: Learn how to use surrounding information to understand meaning, details, and inferences.
Unit 4	Storytelling
Listening	Campus Conversation: Listen to a student and a professor talk about making an oral presentation. Academic Listening: Listen to an interview with storyteller
Reading	Review: Read a short story
Speaking	Independent Task: Tell a short story in which you or someone you know is an animal, plant, or other



Writing	nonhuman thing. Integrated Task: 1. Read about anthropomorphism. 2. Listen to an excerpt from a novel 3. Write about how the author uses various styles of writing.
Skill focus	Identifying and Using Rhetorical Structure: Learn how to recognize and use rhetorical structures in a whole written or spoken passage or part of one.
Unit 5	
Listening	Language Campus Conversation: Listen to a student and a resident assistant talk about living and communicating in a new place. Academic Listening: Listen to an interview about gender and language.
Reading Speaking	Magazine Article: Read about code switching, or switching between languages while speaking. Integrated Task: 1. Read about stereotyping. 2. Listen to an interview with someone who was stereotyped because of his accent. 3. Speak about stereotyping.
Writing Skill focus	Independent Task: Write about a group that you have stereotyped or that you know Identifying and Using Main Ideas and Details: Learn how to use main ideas and details to understand or express important points.
Unit 6	
Listening	Tourism Campus Conversation: Listen to a student talk to a student advisor about site-seeing options in the country Academic Listening: Listen to a town hall meeting dealing with tourism.
Reading Speaking Writing	Magazine Article: Read about a controversial tourist attraction. Independent Task: Give your opinion about the controversial tourist attraction. Integrated Task: 1. Read about vacationing in Antarctica. 2. Listen to a lecture against tourism in Antarctica. 3. Write a summary of the lecture; explain how it contradicts ideas in the reading.
Skill focus	Paraphrasing: Learn how to restate ideas and information without changing the original meaning.
Unit 7	
Listening	Humor Campus Conversation: Listen to a student and a professor talk about a teaching assistant's responsibilities. Academic Listening: Listen to an English speaking comedian.
Reading Speaking	Magazine Article: Read a funny short story, watch an excerpt of a comedy TV program. Integrated Task: 1. Read about humor research. 2. Listen to appropriate jokes told in public. 3. Explain the jokes using theories from the reading.
Writing Skill focus	Independent Task: Write about a TV show or movie that you thought was funny. Summarizing: Learn how to understand summaries and to report information, leaving out less important details.
Unit 8	
Listening	Fashion Campus Conversation: Listen to a student and a career advisor talk about dressing for job interviews. Academic Listening: Listen to an interview about fashion in the workplace.
Reading Speaking Writing	Essay: Read one woman's ideas about wearing traditional cultural clothing. Independent Task: Give your opinion about dress codes or uniform policies in schools. Integrated Task: 1. Read an argument against cosmetic surgery. 2. Listen to an excerpt about cosmetic improvements and surgery throughout history. 3. Write about the risks and benefits of cosmetic surgery.
Skill focus	Comparing and Contrasting: Learn how to recognize and discuss similarities and differences.
Unit 9	
Listening	Punishment Campus Conversation: Listen to a student and a professor talk about plagiarism and academic dishonesty. Academic Listening: Listen to a discussion about disciplinary sanctions
Reading	Newspaper Article: Read about a debate over the disciplinary sanctions in schools.



Speaking	Integrated Task: 1. Read an argument against the death penalty. 2. Listen to an argument supporting execution. 3. Speak about the arguments for and against the death penalty.
Writing	Independent Task: Write about punishments that you think are appropriate for serious crimes.
Skill focus	Using Detailed Examples: Learn how to use and recognize examples that support and illustrate general statements.
Unit 10	
Marriage	
Listening	Campus Conversation: Listen to a student and a librarian talk about researching a report on marriage. Academic Listening: Listen to a lecture about marriage traditions in different cultures.
Reading	Letter to the Editor: Read one man's opinion about his culture's traditional marriage customs.
Speaking	Independent Task: Organize a debate in which students compare and contrast their views on marriage.
Writing	Integrated Task: 1. Read about polygamy in different cultures 2. Listen to an excerpt about marriage in various religions. 3. Write a summary of the reading; use supporting examples from the listening.
Skill focus	Identifying and Using Cohesive Devices: Learn how to recognize and use terms that connect ideas.

RESOURCES:

- Audio and Video Recordings
- Blackboard
- Magazines and Newspapers
- Literature, scientific books
- Dictionaries

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Class discussions • Elaborated papers / homework • Execution of the lab work / classwork • Team expositions on given themes | <ul style="list-style-type: none"> • Research papers / projects • Seminars • Quizzes sessions |
|--|--|

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



GENERAL CHEMISTRY I
CODE: PRE-102
CREDITS: 4
PREREQUISITE: NONE

DESCRIPTION OF THE COURSE:

This subject is the first part in the Inorganic Chemistry course that is offered to students in the health sciences. The theory classes will be widely completed with the laboratory course which consists of 3-hour sessions.

GENERAL OBJECTIVES:

This program has the double role of Teaching and Building Interest in Chemistry to the students. With this purpose, the themes have been designed in such a way that the student will feel that he himself is discovering the different characteristics of the subject, its constitution and its behavior under different conditions.

TEACHING METHODOLOGY:

The students will be motivated to participate by using different activities. The professor will teach with lectures illustrated by graphics, drawings, etc; the experiments from the Laboratory Course are designed to be the most important support of lectures.

CONTENTS:

- What chemistry is all about
- Scope and Importance
- Relation with other areas in the science
- Definitions: matter, mass, weight, volume, density, specific weight
- System for measuring matter
- Energy, relation with matter
- Classification of matter
- Laws of matter
- First atomic theories
- Modern atomic theory
- Structure of the atom
 - Experiments in discharge tubes
 - Rutherford and Moseley's experiments
 - Distribution of electrons in the atom
 - The four quantum numbers
 - Levels, sub-levels and orbitals
- Quantitative aspects of the atom
 - Atomic matter
 - Concept of mole
 - Avogadro's number
- Periodical classification of the elements
 - Classification of matter
 - Periodical law of the elements
- Electrons of valence; Valence
- Noble gases.
- Atomic structure and chemical compartment
- Octet rule
- Electronegativity
- Chemical bond:
 - Chemical bond.
 - Ionic bond.
- Prediction of the type of bond between two atoms
- Chemical symbol
- Chemical Formulas
- Chemical nomenclature
- Review of:
 - Concept of MOLE (Unit 2)
 - Centesimal composition. Law of definite proportions
- Empirical and molecular formulas
- Chemical equation
- HYDROGEN:
 - Natural state
 - Obtention in the laboratory



- Industrial obtention
- Principal uses
- The hydrogen blow tube
- Binary compounds
- Isotopes
- OXYGEN:
 - Natural state
 - Preparation in the laboratory
 - Air separation (Industrial preparation)
 - Metallic binary oxides
 - Metallic non-binary oxides
 - Hydroxides
 - Peroxides and superoxides
 - Ozone
 - Compounds with silicon
- Concept of oxidation and reduction
- Oxidizing and reducing agents
- Series of relative activities
- Corrosion
- General description of the physical states of matter
- Kinetic molecular theory
- Behavior and properties of gases, liquids and solids
- Laws of gases
- Liquefaction of gases
- Storage of gases
- Pressure of steam
- Vaporization heat
- Fusion heat
- Diagram of gases
- Crystals
- Semi-conductive
- Natural state and importance of water
- Molecular structure
- Physical and chemical properties
- Heavy water
- Hydrates
- Hard and soft water
- Purification
- Terminology of solutions
- Classifications
- Concentration of solutions
- Effects of pressure and temperature in solubility
- Solubility of gases in water - Henry's law
- Boiling and fusion points in electrolyte solutions
- Theory of Arrhenius
- Osmotic pressure and osmosis
- Colloidal systems

**EVALUATION:**

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- | | |
|---|------------------------------|
| ● Class discussions | ● Research papers / projects |
| ● Elaborated papers / homework | ● Seminars |
| ● Execution of the lab work / classwork | ● Quizzes sessions |
| ● Team expositions on given themes | |

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





ENVIRONMENTAL SCIENCE
CODE: PRE-103
CREDITS: 3
PREREQUISITE: NONE

DESCRIPTION OF THE COURSE:

Introduction to environmental science is a course which corresponds to the general requirements cycle, oriented to students of all careers offered at AIUTG. It is comprised of 5 units which deal with the interrelations between Society and Nature and with the Ecological principles, including the study of populations with emphasis on human population, energy, natural resources, and pollution.

During the course, a number of activities are carried out, among these are: workshops, panels, reforestation excursions, visits to national parks, plus aural and written presentations on seminars related to environmental problems in the Africa.

GENERAL OBJECTIVES:

At the end of the quarter period, the student should be able to:

- Recognize the principal environmental problems and their implications in the social, economical and political aspects.
- Interpret the basic ecological principles on the flow of matter and energy within the ecosystem and the interrelationships between man and his environment.
- Acquire an ecological conception which will lead to the realization of the need that man has to improve the quality of life, the living conditions of the family and of society in accordance with maintaining an adequate environment.
- Use his/her knowledge on population studies, especially human population, to better understand its impact on our natural resources and on the environment.
- Recognize the importance of developing a proper management policy with the proper legal tools that will permit environmental protection and resource conservation.
- Develop a critical attitude towards environmental problems that will lead to the proposal of alternatives to those problems through public opinion, to influence those who must make decisions.

TEACHING METHODOLOGY:

The methodology will be oriented towards active learning through the participation of the student in class discussions. The student will participate in an individual manner and in groups in the development of the planned activities within the program. The CONTENTS will be illustrated with slides, transparencies and films.

CONTENTS:

UNIT I: INTERACTION BETWEEN SOCIETY AND NATURE

GENERAL OBJECTIVES: Recognize the primary Environmental problems and their relation to society

DESCRIPTION OF TOPIC OR CONTENTS:

TOPIC 1: Interaction between society and nature. Environmental Science and Ecology. The Ecological laws. Primary Ecological problems, worldwide and national.

TOPIC 2: The levels of organization within nature. Biosphere: concept, structure, and evolution. The major sub-divisions of the Biosphere.

SPECIFIC OBJECTIVES:

- Explain the importance of Environmental problems and their relation with the problems of society
- Compare Ecology, and Environmental Science
- Explain the organization of Nature and especially of Ecological systems
- Describe the structure and evolution of the Biosphere

ACTIVITIES, STRATEGY AND RESOURCES:

- Establish similarities between the definitions of Ecology and Environmental Science
- Read articles on Environmental problems and discuss them in class
- Give a list of African Environmental problems and discuss them
- Exercise on the physical chemical and biological evolution of the Biosphere
- Student participation in class discussions will be taken into account
- Reading control and answering a questionnaire

UNIT II: PRINCIPLES OF ECOLOGY

GENERAL OBJECTIVES: Discuss the primary Ecological principles and interpret the relationship of organisms to their environment.

DESCRIPTION OF TOPIC OR CONTENTS:

TOPIC 1: The ecosystem. Structural and functional aspects of ecosystems. The flow of energy in ecosystems. Chains and trophic networks. The law of 10%. Productivity. Energy subsidies. Biogeo-chemical cycles.

TOPIC 2: Communities. Relationships between organism, succession and climax. Biomes. Marine and fresh water communities.

SPECIFIC OBJECTIVES:

- Identify the different components of the ecosystem and recognize their structure and function as part of the balance of nature
- Explain the flow of energy in nature and its importance in the production of food
- Explain the relative stability of the nutritive chains and networks within an ecosystem
- Explain the principal nutrient cycles and their importance in nature
- Explain the organization of nature at the community level
- Describe and point-out examples of relationships between organisms
- Describe and give examples of primary Biomes on Earth
- Recognize Marine and fresh water communities

ACTIVITIES, STRATEGY AND RESOURCES:

- Exercise to identify the different components of land and Marine ecosystems.
- Exercise on trophic chains and networks.
- Draw the Carbon and Nitrogen cycles
- Efficiency exercise
- Film on Marine and Land communities
- Visit to life zone diorama M N H M
- Exercise to identify primary stages, pioneer community, and climax
- Exercise on trophic pyramids

TOPIC 3: Population, Relative principles in the organization of populations. Characteristics. Density, Birth and death rate. Migration. Biotic potential. Population growth. Sand J curves. Environmental endurance.

TOPIC 4: The human population. Demographic history of mankind. Malthus Social implications of population growth. The African population. Changes in world population. Environmental cost. Health and the Environment.

SPECIFIC OBJECTIVES:

- Explain the organization of nature at the population level.
- Explain characteristics and population indexes. Recognize the relation between population growth and the degree of change in nature.
- Know the effect of the current population on nature and its potential growth through indexes.
- Describe the growth of the African and world population.
- Link the environmental conditions with the degree of public health. Describe the population growth in relation with biotic potential and environmental resistance.
- Explain characteristics and population indexes.

ACTIVITY, STRATEGY AND RESOURCES:

- Exercise to identify positive and negative effects of mankind on nature
- Exercise to explain regional population shifts
- Identify through various environmental conditions and public health issues in local region

UNIT III: ENERGY

GENERAL OBJECTIVES: Recognize the Energy Crisis, its causes and some possible solutions.

DESCRIPTION OF TOPIC OR CONTENTS:

- Man in trophic relationships.
- Human Energy consumption. Sources of Energy. Internal and external Energy. Worldwide distribution of Energy consumption.
- Consumption patterns. Energy, economy. Energy sources: combustible, fossil, nuclear, solar. Other energy sources.

SPECIFIC OBJECTIVES:

- Explain why all organisms require constant energy consumption
- Differentiate between internal and external energy
- Recognize the primary sources of energy
- Their limitations, problems, advantages, and disadvantages
- Exercise on energy consumption and interpretation of graphs
- Read FAO article on diet and the environment and discuss it

UNIT IV: NATURAL RESOURCES

GENERAL OBJECTIVES: To describe the primary resources and the importance of managing them in a rational way.



DESCRIPTION OF TOPIC OR CONTENTS:

TOPIC 1:

- Resource: definition and current classification. Renewable and non-renewable, immutably inexhaustible, badly utilized, maintainable or non-maintainable.
- Natural resources: Land Water, Forest, Mining Fishing. Primary resources in the Africa. Principal problems in the use of natural resources by third world countries. Use of Water, deforestation, erosion, endangered, species.
- Wild area: Fishing and overfishing. National Parks

SPECIFIC OBJECTIVES:

- Differentiate between renewable and non-renewable resources
- Establish differences between maintainable non-maintainable resources
- Explain the importance of nature's primary resources
- Recognize the principal in the use of natural resources

ACTIVITIES, STRATEGY AND RESOURCES:

- Bibliographic assignments on the country's natural resources
- Reforestation trip: the students will plant trees in deforested areas
- Make a list of African Institutions that manage water, soil, and forest resources
- Visit to a National Park

UNIT V: POLLUTION

GENERAL OBJECTIVES: Describe the principal environmental pollutants their sources and effects on organism and nature in general.

DESCRIPTION OF TOPIC OR CONTENTS:

TOPIC 1: Pollution. Definition. Types: Bio-degradable, non Biodegradable. Other types. Degree of contamination and norms. Population, development and atmospheric pollution. Types of pollution: sources, effects and importance. Pollution control. Quality criteria for the environmental. Air quality index. Quality norms.

TOPIC 2: Water pollution. Kinds of chemical, physical and biological pollution. Effects on aquatic ecosystems. Eutrophy.

TOPIC 3: Environmental education as an alternative to improve our environment. Environmental protection. National organizations active in the environment. Our laws on the environment.

SPECIFIC OBJECTIVES:

- Explain how technological development and population growth have produced pollution
- Learn about different types of atmospheric pollution and their effects
- Recognize the ability of water to receive and disperse contaminants
- Learn about different types of water pollution and about water quality norms
- Describe Eutrophy
- Differentiate between primary, secondary and tertiary water treatment. Recognize the importance of environmental education at all levels of National Education
- Enumerate the national organizations that deal with the environment
- Discuss African laws that deal with environmental protection

ACTIVITIES, STRATEGY AND RESOURCES:

- Make a list of pollutants and discriminate according to type
- Mention sources of atmospheric to atmospheric pollution
- Discuss African laws related to atmospheric pollution
- Observe the dispersal of substances in a stream
- Make a list of African organizations that deal with the environment
- Compile and discuss the laws that are in effect with relation to the environment
- Written and oral presentation (of seminar type) about a African environmental problem

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





GENERAL BIOLOGY
CODE: PRE-104
CREDITS: 5
PREREQUISITE: NONE

DESCRIPTION OF COURSE:

The course of General Biology has a duration of one trimester and is comprised of units which cover in general terms: cellular and molecular biology, bio-energy principles, nutrition reproduction, genetics and evolution. It is oriented toward students following careers in health sciences, to give them the concepts that will serve as a foundation for the more advanced levels of their careers and within the trends of modern thought. During the course of these, discussions on program topics will be pursued.

GENERAL OBJECTIVES:

At the completion of the course, students are expected to:

- Apply the basic knowledge of biological concepts in upper levels of their studies
- Interpret the general concepts and theories of the biological sciences
- Determine the characteristics of living organisms and the biological processes that are evident in them
- Establish the existing relationship between the structure and form of living organisms
- Interpret the bio-energetic processes and their mutual correlation in maintaining metabolic activity
- Recognize the basic processes involved in the reproduction, heredity and evolution of organisms

TEACHING METHODOLOGY:

The methodology will be oriented towards active learning through the participation of students in class discussions. The students will participate in the execution of lab experiences where they will work in groups. They will have the opportunity to face problem situations from a scientific point of view, proposing logical solutions and the corresponding methods for their verification.

CONTENTS:

UNIT I: CHARACTERISTICS AND ORGANIZATION OF LIFE

GENERAL OBJECTIVES:

Describe the general characteristics, chemical composition, structure, and cellular function of living organisms

SPECIFIC OBJECTIVES:

- Point out the importance of biology and define the most important biological sciences. Describe and apply the different stages of the main characteristics of living things.
- Identify the chemical compounds that form live matter and point out their importance and function
- Identify the different parts of the microscope and use it correctly in cell observation
- Identify the different vegetal and animal tissues and the function they perform
- Use the frog as an example of a vertebrate and identify the organs systems and mention the function each carries out

CONTENTS:

- Biology. Definition. Importance. Current state of Biology. Biological sciences. Characteristics of living organisms.
- Chemical foundation of life: matter and energy. Elements of living matter. Inorganic compounds: water and mineral salts. Organic compounds: Carbohydrates lipids, proteins, enzymes, hormones and nucleic acids.
- The cell. Cellular theory, the microscope and its use in cell observation. Prokaryotic and eukaryotic cells. Cellular membrane. Structure and chemical composition. Movement through the membrane. Cytoplasm and cytoplasmic organelles. The nucleus and its parts. Comparison of vegetal and animal cells. Tissue, Classification, structure and function of the primary animal and vegetal tissues. Organs and organ systems.

ACTIVITIES:

- Make a list of the Biological Sciences and indicate the aspects each studies and which are the principal personalities in each
- Prepare a chart that synthesizes which the most important chemical elements of living matter and their function are
- Identify by means of lab tests, the most important chemical compounds in living matter
- Use the light microscope correctly to study different types of materials
- Make a diagram of typical vegetal and animal cells circling each of the organelles structures visible with the microscope
- Observe with the microscope the physical changes that occur in the cells as a result of passing through the membrane
- Identify the organs and structures visible to the light microscope in different types of animal and vegetal cells, and establish the differences between animal and vegetal cells



- Study of the primary animal and vegetal tissue in fresh and in permanent preserved solutions
- Study of the primary organs and organ systems of a vertebrate type, by means of frog dissection

UNIT II: BIOENERGETICS AND METABOLISM

GENERAL OBJECTIVES:

Describe the primary events that occur in photosynthesis, nutrition and breathing and the biological importance of these metabolic processes.

SPECIFIC OBJECTIVES:

- Explain in simple terms the formation of ATP in the cell and the role of this molecule in the metabolic process. Explain the role of chlorophyll in the transformation of light energy into chemical energy. Describe the process of photosynthesis its different stages and importance in the transformation of matter in living organisms.
- Point out which are the principal nutrients and the enzymes that act upon them. List the areas of the human digestive system and the digestive enzymes they produce.
- Define aerobic and anaerobic cell breathing and establish the differences between both processes. Describe in general terms the events that occur during cell breathing and its relation with the transformation and use of energy.

CONTENTS:

- **Enzymes:** enzymes are composed of proteins or RNA. What Enzymes Do and How They Do It; Ways of measuring the rates of enzyme reactions Modulators of Enzyme Activity; Effects of Cellular Environment on Enzymes; Coenzymes and Cofactors;
- **Metabolism:** Overview of ATP production; Structure of Mitochondria and ATP; Glycolysis; Fermentation; Krebs Cycle; Chemiosmosis and Oxidative Phosphorylation.; potential macromolecular energy sources for oxidative phosphorylation Regulation of ATP production
- **Photosynthesis:** Structure of Chloroplast; Light Dependent Reactions; Light Independent Reactions; C3 and C4 Plants

ACTIVITIES

- Prepare an overview of ATP production.
- Identify by means of laboratory the evidence of photosynthesis
- Make a Diagram of Krebs Cycle
- Observe enzymatic activity in Laboratory Setting
- Identify enzymatic properties in Laboratory Setting

UNIT III: GENETICS AND EVOLUTION

GENERAL OBJECTIVES:

Explain the fundamental mechanisms that intervene in the transmission of hereditary traits and their relation with the evolution of organisms.

SPECIFIC OBJECTIVES:

- Apply the Mendelian laws of heredity.
- Define genotype and other basic terms of the genetic vocabulary.
- Illustrate the results of monohybrid crossing in cases of total or partial dominance. Correlate the laws of probability with the results of Mendelian heredity.
- Explain sex-linked heredity.
- Explain the causes and consequences of mutations.
- Explain the importance of the genetic code and its nature. Point out the advances in molecular genetics and the applications of genetic engineering.
- Define and explain the basic principles of evolution. Discuss the different theories on evolution. Explain the modern concept of "species".
- To understand the basics of evolution by natural selection. To calculate allele frequencies as they relate to inheritance. To understand the Hardy-Weinberg Law and how evolution takes place when this law is not in place.

CONTENTS:

- Mechanisms of heredity. Mendelian heredity introduction to the genetic vocabulary. Laws of probability and their application to the phenomenon of heredity. Multiple alleles and blood groups. Sex-linker heredity, mutations. Causes and consequences.\
- Molecular base of heredity. Genetic structure and its replication Protein synthesis and genetic code. Gene regulation.
- Origin and evolution of life. Darwin and evolution. Principles of evolution. Effects of evolution. Discussion of the different theories of evolution, Genetic base for evolution. Hardy-Weinberg's law of equilibrium. Factors that alter equilibrium. Specification.

ACTIVITIES:

- Each student will do an analysis of the transmission of a characteristic in his family in order to determine the phenotypes and possible genotypes in each member of his family
- Do exercises on monohybrid crossing with total or partial dominance and of sex-linked heredity



- Investigate mutations, their importance in evolution, and the most common mutagenic agents
- Make representative diagrams of the structure of DNA and its replication mechanism
- Group presentations on their respective theories of evolution. Explanations and comments by the teacher.
- Understand that the theory of evolution is a process of gradual change. Understand scientific inquiry and critical thinking.
- Understand form and function of DNA
- Understand theory of biological evolution
- Understand personal relationships and technical communication
- To hold classroom Debates on issues regarding genetic advancements and ethic consequences
- Do three simulations that will demonstrate the principles of inheritance. The first simulation will demonstrate genetic equilibrium (the Hardy Weinberg Law), the second will demonstrate genetic drift, and the third will demonstrate a lethal recessive.

UNIT IV: MOLECULAR BIOLOGY

GENERAL OBJECTIVES:

What is the genetic material, inheritance of genetic material, Structure of DNA and RNA, Transcription, Translation and the Genetic Code, Mutations, Differential Gene Expression

SPECIFIC OBJECTIVES:

- Make up of DNA. How the structure of DNA was discovered. What is the composition of Human DNA.
- Make up of RNA. Identify the different types of RNA, structure, and function.
- To describe the functions of each organelle in the prokaryotic and eukaryotic cell.

ACTIVITY:

- Discuss the process of how a protein is produced from a code of DNA
- Discuss the molecular basis of disease using some of the different theories in existence.
- Make a diagram of how DNA is turned into a protein

UNIT V: BIOTECHNOLOGY

GENERAL OBJECTIVES:

- To define and identify the use of Vectors and Restriction Enzymes
- To understand the function of PCR and RFLP technologies
- To evaluate possible Biological and Medical Consequences

CONTENTS:

- Genetic changes that can be manipulated through recombining selected genes,
- Applications of genetic engineering,
- Limitations of genetic engineering,
- Applications of fermentation technology,
- To consider some risks and benefits of genetic engineering
- To consider some ethical issues related to biotechnology.

ACTIVITIES

- To discuss some reasons to make changes in organisms and to explore the need for genetic changes
- To demonstrate the purpose of manipulating genetic change: to produce organisms with desired traits and to discuss why these traits are important.
- To sum up the unit and for evaluation

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- | | |
|---|------------------------------|
| • Class discussions | • Research papers / projects |
| • Elaborated papers / homework | • Seminars |
| • Execution of the lab work / classwork | • Quizzes sessions |
| • Team expositions on given themes | |

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination



Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





MATHEMATICAL REASONING I
CODE: PRE-105
CREDITS: 4
PREREQUISITE: NONE

DESCRIPTION OF THE COURSE:

- To complement the knowledge acquired during high school, redefining it, through the use of the language of sets, up through giving the student a view of algebraic elements and their operations.
- To introduce the student to the abstraction process, which will enable him to strengthen his reasoning powers.
- To awaken the original activity of reasoning, by suggesting methods of analysis, which will help the student in the understanding of everyday real life problems.

CONTENTS:

- Concept of: Judgment, enunciation or phrase
- Truth value
- Proposition, Axiom and Theorem
- Simple and compound propositions
- Logical connectors: Negation, conjunction, disjunction: exclusive and inclusive; conditional, unconditional
- Truth tables
- Quantifiers
- Ways of expressing quantifiers: Existential and Universal
- Idea of sets. Power set
- Relations between sets
- Euler-Venn diagrams
- Operations with sets
- Natural numbers: Their properties and internal operations
- Whole numbers: Their internal Z properties: Important elements of the internal Z properties
- Rational numbers: Their properties
- Mathematical operations with rational numbers: Addition, subtraction, multiplication, division, power, and radicals
- Mathematical operations with whole numbers
- Ratio and proportions
- Direct and inverse variation
- Simple and compound proportions
- Percentages and Percentiles
- The metric system. Units
- Product rules
- Rules of the square of the sum and difference of two quantities
- Quotient rules
- Progressions, Series:
 - Mathematical progressions
 - Geometrical progressions
- Formula deductions in order to find nth term of a mathematical, geometrical and harmonic progression
- Equations and inequality
- Numeric and literal equations
- Solution set of first degree equations and inequality
- 2nd degree equations: General formula
- 2nd degree equations by factorization
- Second degree inequation
- Equation system: Definition and methods of solving the equation systems

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions



- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





INTRODUCTION TO SOCIOLOGY
CODE: PRE-106
CREDITS: 3
PREREQUISITE: NONE

DESCRIPTION OF THE COURSE:

Introduction to the Sociology is designed to initiate students in the scientific study of Society and induce them to a positive attitude toward the investigation and interpretation of the social phenomena. It will serve as a basis for other subjects studied in the Social Areas during the General and Basic Cycle.

GENERAL OBJECTIVES:

- To value the importance of the scientific study of society
- To analyze in a general way the historical development of the Social Sciences
- To examine the object of study of the different Social Sciences determining their fundamental problems
- To manifest positive positions toward the interpretation and investigation of the social phenomena
- To express leadership qualities in the discussion of the characteristics of the present African Society

TEACHING METHODOLOGY:

The course is designed from the basic orientation of AIUTG's General Cycle which allows students to be the subject of their own learning. Therefore, the learning methodology will be based on the active participation of students in the realization of the different activities related to the CONTENTS of the program.

The methodology of the course will be oriented in the following manner:

- Bibliographic consultation concerning the CONTENTS of the program
- Elaboration of summaries and sketches of the assigned reading
- Interpretation and discussions of the results of the bibliographic consultation
- Composition and exposition of the reading report
- Brief exposition by the professor of the most important items of each theme

CONTENTS:

UNIT I: HISTORICAL DEVELOPMENT OF THE SOCIAL SCIENCES

OBJECTIVES:

- To analyze the process of the constitution of the Social Sciences from the aspect of Social Philosophy
- To evaluate the character of the Social Sciences in the different historical periods
- To value the scientific character of the Social Sciences
- To verify the subject of study of the main Social Sciences

CONTENTS 1: Social Philosophy and Social Science

SPECIFIC OBJECTIVES 1: To differentiate Social Philosophy from Social Science

ACTIVITIES 1:

- Bibliographic consultation about the CONTENTS of the unit
- To write down the different definitions of Science and discuss them in class reaching conclusions about what it is, what it is for, and what its characteristics are
- To write down the difference in the study of Social Philosophy in reference to the Social Science for obtaining conclusions
- To discuss in class precise examples on what the Social Philosophy and Social Science deal with

CONTENTS 2: Characteristics of studies on Society in Antiquity, the Middle Ages, the Renaissance and the Reform Era

SPECIFIC OBJECTIVES 2: To distinguish the characteristics of the studies on Society during the Antiquity, Mediaeval period, the Renaissance and the Reform Era

ACTIVITIES 2:

- To elaborate an explicative sketch about the characteristics of the studies of Society in Antiquity, Mediaeval period, the Renaissance, and the Reform for discussion in class
- To discuss in class the contributions of the main thinkers from each period and obtain conclusions

CONTENTS 3: Relation between the development of capitalism and the emergence of the Social Sciences

SPECIFIC OBJECTIVES 3: To establish the relation between the development of capitalism and the emergence of the Social Sciences, highlighting the contribution of this period

ACTIVITIES 3:

- To write a brief essay about the relation between the development of capitalism and the emergence of the Social Sciences as such, for its exposition in class



- To discuss in groups why the development of capitalism demands a new kind of knowledge about Society
- To present a discussion in class from the conclusions of each group

CONTENTS 4: Contributions of the XVIII and XIX centuries

ACTIVITIES 4: To elaborate an explicative sketch about the contributions to the study of the Society of the XVIII and XIX Centuries for discussion in class

CONTENTS 5: XX Century and the dismemberment of the Social Sciences

SPECIFIC OBJECTIVES 5: To characterize the Social Sciences in the XX Century highlighting present tendencies in XXI Century

ACTIVITIES 5:

- To elaborate an explicative picture of the characteristics of the Social Sciences in the XX Century and their present tendencies for discussion in class
- To write a brief essay about the causes of the characteristics of the Social Sciences in the XX Century for its exposition in the classroom
- To discuss in class the differences and relations between the characteristics of the studies about society since the Antiquity until our days in order to obtain conclusions

CONTENTS 6: Difficulties in the process of recognition of the Social Sciences as such

SPECIFIC OBJECTIVES 6: To verify the difficulties of the Social Sciences in being recognized as such.

ACTIVITIES 6:

- To write the definitions of the following concepts: truth, objectivity, subjectivity, impartiality, neutrality, experimentation, general and positive characteristics of the social phenomena, judgment that is needed in science, which belong to the scientific knowledge and which do not
- To elaborate an explicative sketch in order to explain if the requirements of science are accomplished with the Social Sciences or if they are not, for discussion in class
- To write a short essay about the difficulty of the Social Sciences being recognized as such, for exposition in class
- To look in newspapers, magazines, books, etc. for opinions dealing with the question of if the Social Sciences are or are not sciences; and to discuss in class the different criteria that sustain those opinions

CONTENTS 7: Subject of study of the main Social Sciences; Sociology, Economy, Anthropology, Political Sciences, and History. Relations and Differences

SPECIFIC OBJECTIVES 7: To determine the subject of study of Sociology, Economy, Anthropology, Political Science, and History, establishing their relations and differences

ACTIVITIES 7:

- To write the definitions that are found in dictionaries of Sociology, Economy, Political Science, Anthropology and History in order to compare them with those definitions found in books. To discuss the definitions in class for obtaining conclusions
- To elaborate an explicative sketch about the subject of study in each one of the Social Sciences pointed out in the above activity for an exposition of the relations and differences
- To look for precise examples that would study each of these sciences and discuss them in class
- To elaborate a list of the scientific investigations done in our country and discuss them in class

UNIT II: THE SOCIAL RELATIONS

OBJECTIVES: To analyze the main concepts in social relations

CONTENTS 1: Concept of Society

SPECIFIC OBJECTIVES 1: To define the concept of Society

ACTIVITIES 1:

- To consult bibliographies on the CONTENTS of the unit
- To write the definition of Society for discussion in class
- To hold class discussions on the different meanings of the word society as used by the media in order to obtain conclusions to establish whether they are used properly or not

CONTENTS 2: Concept of social relations, action and social interaction

SPECIFIC OBJECTIVES 2: To highlight the notions of social relations, actions and social interactions

ACTIVITIES 2:

- To write the definition of social relations, action and social interaction for discussion in class
- To expose examples of social relations, action and social interaction for obtaining the fundamental part of society and reach conclusions

CONTENTS 3: Social groups and institutions

SPECIFIC OBJECTIVES 3: To interpret the sociological notion of social groups and institutions



ACTIVITIES 3:

- To write definitions of social group and institutions for discussion in class
- To expose in the classroom precise examples of social groups and institutions for discussion
- To write definitions of role and status giving precise examples, for discussion in class
- To discuss in class the influence of leadership inside group behavior in order to get conclusions that explain the sociological phenomena

CONTENTS 4: Concept of Social Classes

SPECIFIC OBJECTIVES 4: To analyze the concept of social classes

ACTIVITIES 4:

- To write the definition of social classes for discussion in class
- To elaborate a picture with the use for class exposition
- To look for examples in newspapers of the utilization of the term Social Classes and determine if the definition corresponds or not with the given sociological definition, and why

UNIT III: SOCIETY AND ECONOMY

OBJECTIVES: To evaluate the role of the economic structure in society

CONTENTS 1: The role of the Economy in Society: social character of the Economy

SPECIFIC OBJECTIVES 1: To determine the role of the Economy in Society

ACTIVITIES 1:

- To consult the bibliography on the CONTENTS of the unit
- To write the definition of work for discussion in class
- To elaborate a sketch of the elements in the process of work for exposition in class
- To present a precise case where the constituting elements of the process of work are shown, discussion in class
- To write a short essay about one of the following topics:
 - The social character of the Economy
 - The importance of the economy in Society
 - The relation between work and Society
 - The determinant element in Society
- To expose in class the best works for their discussion in class

CONTENTS 2: Notion of economic structure

SPECIFIC OBJECTIVES 2: To examine the economic structure in the different forms of organization of work explaining the importance of technology and its consequences

ACTIVITIES 2:

- To write the definitions of economic structure for discussion in class
- To look for examples of economic structures in order to expose them and obtain conclusions

CONTENTS 3: Forms of work organization. Importance of technology. Production of surplus.

SPECIFIC OBJECTIVES 3: to highlight the different forms of work organization and to define the place of technology

ACTIVITIES 3:

- To elaborate a picture of the different forms of work organization for discussion in class
- To discuss in class the importance of technology and the role of the development of productive forces in the productive process for conclusions
- To expose in class precise examples related to our Society and the importance of technology and the development of productive forces for discussions
- To write a brief essay about the conditions under which the surplus and its consequences are produced

CONTENTS 4: Relations of production

SPECIFIC OBJECTIVES 4: To define the relations of production

ACTIVITIES 4:

- To write definitions of relations of production for discussion in class
- To expose examples of relations of production for discussion
- To discuss the precise examples of relations of production in African Society for conclusions

CONTENTS 5: Distribution consumption of production

SPECIFIC OBJECTIVES 5: To analyze the distribution and the consumption of production in different kinds of societies

ACTIVITIES 5:

- To discuss in class the different forms of distribution and consumption of production for conclusions
- To elaborate a picture about the forms of distribution and consumption in our Society for its exposition in class



UNIT IV: HISTORY AND SOCIETY

OBJECTIVES: To evaluate the historical character of society. To develop the notion of temporality in history and its generalized view

CONTENTS 1: Historical character of Society

SPECIFIC OBJECTIVES 1: To determine the historical character of Society

ACTIVITIES 1:

- To consult the bibliography on the CONTENTS of the unit
- To elaborate an explicative sketch on the relation between History and Society for exposition in class
- To write a brief essay answering the question: What is historical? For exposition in class
- To show precise examples of the historical character of Society for discussion in class

CONTENTS 2: Time and historical period. Criteria of periodization and its criticism

SPECIFIC OBJECTIVES 2: To check the characteristics of historical time and the criteria of periodization

ACTIVITIES 2:

- To write the definition of time, period, periodization, for discussion in class
- To discuss in class the differences between chronological and historical time for conclusions
- To elaborate a picture with examples about chronological time and historical period for exposition in class
- To elaborate a explicative sketch about the different criteria used in periodization for exposition in class.
- To look for examples in text books of the different criteria of periodization for discussion
- To discuss in class the criticism done to the different sketches of periodization for conclusion

CONTENTS 3: Notion of historical totality

SPECIFIC OBJECTIVES 3: To verify the notion of totality in history

ACTIVITIES 3:

- To write the definition of historical totality for discussion
- To discuss in class the different ways to analyze history for conclusions
- To look for examples in text books about the view of history for discussion in class
- To write a brief essay about the notion of history as a science for exposition in class

UNIT V: CULTURE, CIVILIZATION AND RACE

OBJECTIVES:

- To categorize according to the anthropological view of the concepts of culture and civilization
- To determine the judgments in the handling of the term "race"

CONTENTS 1: Concepts of culture and civilization

SPECIFIC OBJECTIVES 1: To define according to the anthropological view, the concept of culture and civilization

ACTIVITIES 1:

- To consult the bibliography on the CONTENTS of the unit
- To write the definitions of culture and civilization for discussion
- To look for examples in newspapers, magazines, and text books about the common use of the term culture and civilization and why
- Discussion

CONTENTS 2: Concepts of Race, Ethnicity, Folk, and Nation

SPECIFIC OBJECTIVES 2: To establish the anthropological criterion of Race, Ethnicity, Folk, and Nation

ACTIVITIES 2:

- To write the anthropologic criteria of Race, or Ethnicity, for discussion in class
- To elaborate a picture of the elements that do not have relations with racial groups according to UNESCO in "Four Declarations about the Racial Matter". Exposition in class
- To look in newspapers, magazines, and text books, for examples where the relation between race and social aspects established. Discussion in class
- To look for examples in the media that deal with race in order to determine its position, and find out if it is or not in agreement with the scientific position and why
- To write the definitions of Folk and Nation according to the anthropological criteria and the ones used in the media for conclusions
- To discuss the differences in the terms Folk and Nation according to the anthropological criteria and the ones used by the media
- To look for examples in newspapers, magazines, and books where the terms Folk and Nation are used in order to determine if they are utilized in a scientific manner or not



UNIT VI: SOCIETY AND POWER

OBJECTIVES:

- Characterize politics as relations of power
- Evaluate the characteristics of the relations of power in the political structure
- To establish the relations between the government, the state, and civilian society

CONTENTS 1: Politics as relations of power

SPECIFIC OBJECTIVES 1: To examine politics as relations of power

ACTIVITIES 1:

- To consult the bibliography on the CONTENTS of the Unit
- To write the definitions of Politics for discussion in class
- To expose in class what the relation of power is about
- To write a brief essay about the interpretation of politics as relations of power for exposition in class
- To look for precise examples about the relations of power for analysis in class

CONTENTS 2: Characteristics of political structure

SPECIFIC OBJECTIVES 2: To establish the characteristics of political structure

ACTIVITIES 2:

- To elaborate an explicative sketch on the elements of political structure for discussion in class
- To discuss in class with precise examples the characteristics of political structure for conclusions
- To write a short essay about the characteristics of the African political structure for exposition in class

CONTENTS 3: Concepts of State, Government, and Civilian Society

SPECIFIC OBJECTIVES 3: To analyze the relations between the State, the Government, and Civilian Society

ACTIVITIES 3:

- To write the definitions of State, Government, and Civilian Society, giving examples, for discussion in class
- To elaborate an explicative sketch on the relations between State, Government and Civilian Society for exposition in class
- To write a brief essay about the role of leadership inside the political sphere pointing out characteristics of political leadership in the present African Society

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



FRENCH I
CODE: PRE-107
CREDIT: 3
PREREQUISITE: NONE

DESCRIPTION OF THE COURSE:

This syllabus contains the use of formal and informal expressions that will enable the student to interact with effective communication skills in different situations, such as, family, work and social circumstances.

For this purpose it contains a repertoire of the basic vocabulary, as well as the grammar that will permit an adequate use of the language at a beginning level.

The CONTENTS will be enriched with simple readings of different aspects of everyday life.

GENERAL OBJECTIVES:

- To develop the necessary language skills for aural and written communication in French
- To enrich vocabulary and improve the articulation of spoken messages

METHODOLOGY:

The development of the course will basically be practical. The professor will guide the class sequence and will stimulate the active participation of the student.

The teaching of the grammatical aspects will be taught in an indirect way through texts previously selected. The professor will create and guide the following classroom events:

- Motivation of students for maximum learning results
- Aural information of the objectives of each class
- Establish the relation between formal and informal language
- Discussion or explanation of each concept
- Presentation of extra examples, if necessary
- Direct discussion groups, pointing out imperfections, and making the corresponding corrections, always stimulating group participation
- Will direct active participation in the creation or reading of dialogues
- Evaluate the achievement of the objective

ACTIVITIES:

- Dialogues between students
- Dramatizations
 - Visit to a market
 - Visit to a store/shopping mall
 - Visit to a restaurant
- Written Exercises

RESOURCES:

- Recordings
- Blackboard
- Magazines
- Newspapers
- Dictionaries

CONTENTS:

LESSON 1: Customs - At the International Airport

GRAMMAR EXERCISES -

LESSON 2: In the Kitchen

GRAMMAR EXERCISES -

LESSON 3: At the Gym

GRAMMAR EXERCISES -

LESSON 4: At the Bank

GRAMMAR EXERCISES -

LESSON 5: Self service

GRAMMAR EXERCISES -

LESSON 6: At the Restaurant

GRAMMAR EXERCISES -

LESSON 7: In the Room

GRAMMAR EXERCISES -

LESSON 8: In the Street

GRAMMAR EXERCISES -



LESSON 9: In the Science Class
GRAMMAR EXERCISES -
LESSON 10: At a Wishing Fountain
GRAMMAR EXERCISES -
LESSON 11: At Home
GRAMMAR EXERCISES -
LESSON 12: At the Door of the House
GRAMMAR EXERCISES -
LESSON 13: At the Party
GRAMMAR EXERCISES -
LESSON 14: At the Club
GRAMMAR EXERCISES -
LESSON 15: At the Grocery Store
GRAMMAR EXERCISES -
LESSON 16: At the Dry Cleaners
GRAMMAR EXERCISES -
LESSON 17: At Church
GRAMMAR EXERCISES -
LESSON 18: In a Warehouse
GRAMMAR EXERCISES -
LESSON 19: At a Banquet
GRAMMAR EXERCISES -
LESSON 20: In the Family Room
GRAMMAR EXERCISES -
LESSON 21: The Food Cabinet
GRAMMAR EXERCISES -
LESSON 22: At the Picnic
GRAMMAR EXERCISES -

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

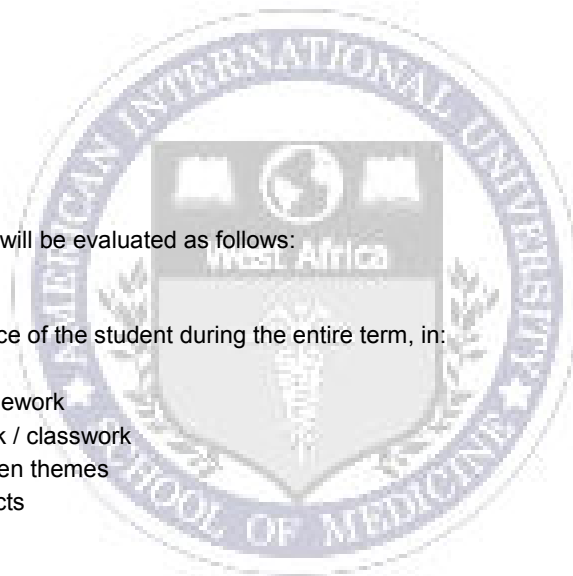
SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





ORIENTATION
CODE: PRE-108
CREDITS: 1
PREREQUISITE: NONE

DESCRIPTION OF THE COURSE:

- To efficiently know and use the institutional sources of AIUTG so you can deal with student life.
- To apply the academic abilities in handling the studies of techniques and methods that guarantee a performance according to the university requirements.
- To revalue your own decision about the chosen career and if necessary, redefine your vocational selection.

TEACHING METHODOLOGY:

This Course is designed according to the basic Principles of the General Cycle which allows the student to be responsible for his/her own learning process. The teaching methodology is based on student active participation through practical activities.

CONTENTS:

- Academic rules. Academic Calendar. University instruments
- Types of students
- Admission, registration, readmission and entrance processes
- Academic evaluation. Grades
- Academic degrees. Importance and meaning of the academic degree for the career. Revision and withdrawing a subject
- Academic charge, Promotion, permanency and Discharge. Change of career.
- Academic Honors
- Different criteria for the elaboration of exams.
- Types of exams: Objectives and essays. Previous preparation for the exam.
- Planned study versus the studying through memorization
- Rules and recommendations when taking objective and theoretical examinations
- Rules of AIUTG. Juridical status. Goals and Organization.
- Organizational structure of the University. Functions of different units.
- The Library. Structure and function.
- Techniques in the elaboration of personal bibliographical files
- Reading. Specific Purposes.
- Vocabulary and quick reading
- Methods for improving vocabulary (files, dictionaries, contexts, prefixes, and suffixes)
- Main ideas and accessories
- Reasons for taking notes. Steps in taking notes. Taking reading notes. Underlining. Organization of the material of note-taking. Logical sketches and charts. Suggestions in the use of symbols for taking notes
- Systematic methods for the elaboration of written reports
- Bibliographical quotes. Textual and non-textual. The most usual forms of consigning the bibliography
- Different formats of presentation
- Techniques for the realization of oral expositions
- Types of oral reports. Characteristics
- Essential requirements of the oral report
- Logical organization of the presented information
- Specific recommendations in order to improve the oral report
- Factors in the selection of a profession:
 - Personal characteristics
 - Socio-economical elements
 - Academic requirements
- The world of employment

EVALUATION:

Students' academic performance will be evaluated as follows:

**SCORE 1**

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

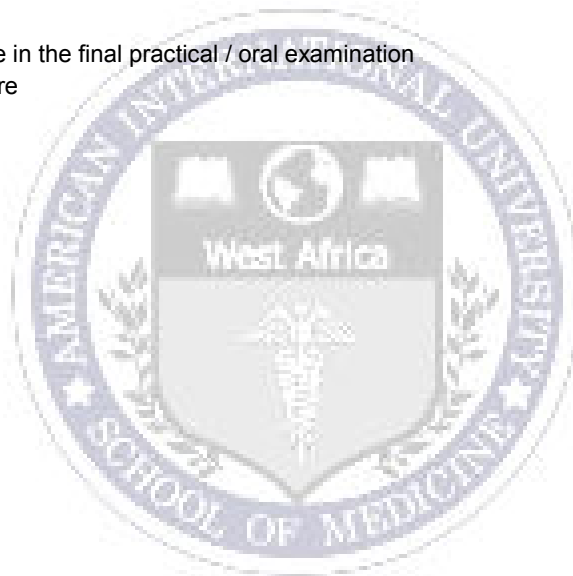
SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





SPORT AND CULTURE
CODE: PRE-109
CREDITS: 1
PREREQUISITE: NONE

SUBJECT DESCRIPTION:

Sport and Culture is a course aimed at all AIUTG students. It arises as a response to a problem that has been closely analyzed by modern educators. The problem states as follows: professionals graduated from higher educational institutions do not possess, mostly of the times, the capacity to assume:

- That the human body as a biological being, in addition to a healthy nutrition, needs a physical - recreational activity that suits each stage of life in order to achieve an adequate functioning (sports related aspect)
- That the existence of human work manifestations, even if in some cases they are not be directly related with the area of study chosen by graduated students, is necessary to their own emotional, intellectual and even economic development in some way, depending on the society that one has to live in (cultural related aspect)

For this subject, students have to choose according to their personal interests and their physical condition one of the following options:

- Chess
- Vocal Music Appreciation
- Literary Appreciation
- Modern Dance
- Personal Defense (J -Jutsu)
- Gym
- Theatre
- Table Tennis

Students must attend the course, two (2) hours a week, for a period of a single trimester.

GENERAL OBJECTIVES:

To guarantee that all professionals graduated from AIUTG have positively gained access to sports and cultural aspects, from a positive manner, assuring in this way that from an individual point of view, they obtained for themselves the profits mentioned in the description, as well as, in parallel, from a collective point of view, they can contribute from their leader position to the development of sport and culture in the society they live.

TEACHING METHODOLOGY:

Each one of the offered aspects of this subject (See Description above) has a different curriculum that the student will know with his / her educator when choosing it.

- Theoretical Frame:

All curriculums include a brief theoretical frame that familiarizes students with philosophy, history and the basic techniques of the discipline of their choice. Curricula also include assistance to artistic and / or sports events, as well as a brief approach to the difficulties presented by the practice of the activity in the country.

The tools or resources used for the execution of the theoretical frame are the following:

- Media support (videos, slides, etc.)
- Conferences or talks with professionals of the field. Bibliographic material (books, booklets, publications, etc.)

- Practical Frame:

Within this frame, students will execute the sport or the cultural related aspect of their choice without ever exceeding the aims exposed below in the objectives of the subject.

The resources used are the following:

- Sports Equipment
- Practice texts (theatre plays, scripts, poetry, novels, essays, etc.) Plays and musical texts (songs, scores, etc.)

**EVALUATION:**

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

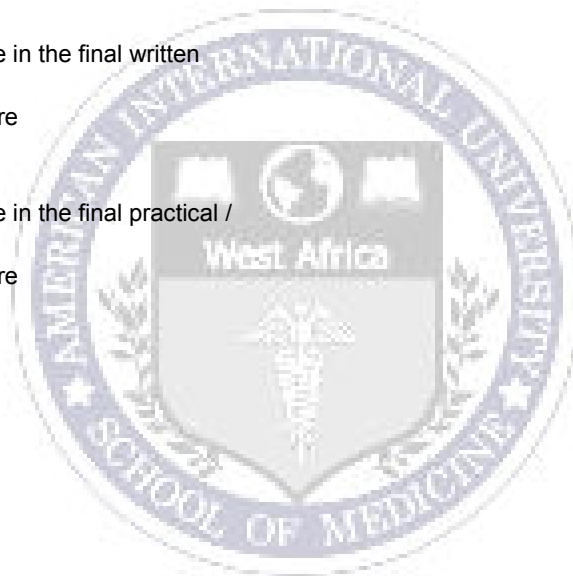
SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





ENGLISH II
(HIGH INTERMEDIATE LEVEL)
CODE: PRE-201
CREDITS: 3
PREREQUISITE: PRE-101

DESCRIPTION OF THE COURSE:

The English language course is divided into three levels, taught during three consecutive trimesters: English I (Intermediate level), English II (High Intermediate level), and English III (Advanced level).

The syllabus is conceived so that it concentrates on the formal academic English used in lectures as well as the informal English used in normal campus life by students, professors and other college or university employees.

GENERAL OBJECTIVES:

The course objectives are:

- to enhance students' ability to read, write, speak and understand English used in college or university
- to prepare the students for successfully managing the challenges of studying at a university with courses conducted in English, focusing on proficiency in reading large amounts of scientific material, completing written assignments, exams, and projects, and delivering academic oral presentations

TEACHING METHODOLOGY:

The teaching methodology is specially designed to foster advanced skills in:

- Reading
- Listening
- Speaking
- Writing

and secondary and support skills including: grammar, vocabulary, pronunciation, spelling, note-taking, summarizing, synthesizing, making connections, outlining, skimming, scanning and mind mapping.

- Enhancement of linguistic skills (reading, speaking, and writing), for effective communication in an academic setting
- Development of students' reading skills, focusing to make reading more efficient through improving the acquirement of information from the read material and through developing critical thinking and reading to learn skills
- Training advanced reading methods, such as: pre-viewing, reading faster, using context, making inferences, skimming, scanning, making connections, summarizing, taking notes, and synthesizing
- Practice advanced listening skills and the exercise with various types of questions:
 - basic comprehension questions
 - pragmatic understanding questions
 - connecting information questions
- Developing reading and listening skills allowing efficient:
 - understanding facts and details
 - identifying main ideas
 - identifying negative facts
 - locating referents
 - understanding vocabulary in context
 - making inferences
 - determining attitude and purpose
 - understanding implication
 - paraphrasing
 - connecting content
 - understanding coherence
 - following logic
 - summarizing important points
- Improving students' speaking skills through promoting simple, correct, and organized discourse
- Developing students' capacity to correctly elaborate, both orally and in writing, complex sentence structures and use high-level vocabulary



- Training students' ability to express opinions on given topics and to provide elaborate arguments, explanations, and examples supporting their opinions, both orally and in writing
- Teach strategies to help students organize and focus their writing
- Practice with students independent and integrated writing of essays
- Revise the most important grammar points: verb tenses, nouns, pronouns, modals, parts of a sentence, verbs, prepositions, gerunds, infinitives, articles, noun clauses, adjective clauses, adverb clauses, prepositional phrases, comparatives, superlatives, conjunctions, connectives, parallel structures, word order, word forms, word choice, and redundancy.
- Train students to be comfortable and confident using a wide range of grammatical structures, to demonstrate effective use of grammar, and exhibit a high degree of automaticity, with good control of basic and complex structures, demonstrating syntactic variety, appropriate word choice, and idiomatity.
- Permanently focus developing students' vocabulary, particularly the academic, and form the students into the techniques of vocabulary development / specific vocabulary building program.
- Improve pronunciation, and train students' speaking skills (well-paced, clear, and articulate speech, with effective intonation and rhythm, supportive of the message)
- Exercise other skills as: note-taking, summarizing, paraphrasing, outlining, mind-mapping, synthesizing, skimming, and scanning, and other supportive skills for an effective English student and communicator.
- Each course unit is supplemented by grammar revisions and vocabulary enhancement sessions.

CONTENTS (High Intermediate Level):

Unit 1	Media
Listening	Campus Conversation: Listen to a student and a professor talk about research topics. Academic Listening: Listen to a radio news interview about an unusual website.
Reading Speaking	News Article: Read about the effect of news coverage on one family's life. Integrated Task: 1. Read about technology's effect on the news. 2. Listen to a lecture about modern news reporting. 3. Speak about modern news reporting, debating points from the reading and the lecture.
Writing Skill focus	Independent Task: Write about the news source that you think is the best. Skimming and Scanning: Learn how to find information quickly.
Unit 2	Overcoming Obstacles
Listening	Campus Conversation: Listen to a student and a professor talk about classes the student missed. Academic Listening: Listen to a news report about disabled mountain climbers.
Reading Speaking Writing	Essay: Read about one woman's experience of living without sight. Independent Task: Speak about a difficult experience and how you overcame it. Integrated Task: 1. Read about the Americans with Disabilities Act of 1990 — the ADA. 2. Listen to a description of how one disabled man has benefited from the ADA. 3. Write about the ADA, using examples from the listening.
Skill focus	Paraphrasing: Learn how to recognize paraphrases and restate ideas without changing the original meaning.
Unit 3	Medicine
Listening	Campus Conversation: Listen to a student and a coach talk about health requirements for playing sports. Academic Listening: Listen to a radio interview about sleep deprivation.
Reading Speaking	News Article: Read about a patient who used laughter to fight his illness. Integrated Task: 1. Read an announcement about a new late night study center. 2. Listen to a student's opinion about the study center. 3. Speak about the student's opinion.
Writing Skill focus	Independent Task: Write about the effects of emotions on a person's health. Identifying and Using Main Ideas and Details: Learn how to use main ideas and details to understand or express important points.
Unit 4	Natural Disasters
Listening	Campus Conversation: Listen to a student and a computer technician talk about a computer problem after a thunder storm. Academic Listening: Listen to a radio report on collecting information about hurricanes.



Reading Speaking	Fiction Excerpt: Read about a rain storm's effect on a family. Independent Task: Speak about a time when you experienced a natural disaster or unusual weather event.
Writing	Integrated Task: 1. Read about tornadoes. 2. Listen to a lecture about hurricanes. 3. Write about tornadoes and hurricanes. Compare and contrast them.
Skill focus	Making Inferences: Learn how to make guesses about information not stated directly.
Unit 5	Conservation
Listening	Campus Conversation: Listen to a student and a resident assistant talk about on-campus recycling. Academic Listening: Listen to a lecture about ecological home building.
Reading	Reading: Read an interview with a Cherokee medicine priest about the environment and conservation.
Speaking	Integrated Task: 1. Read about ecocities. 2. Listen to a conversation about ecocities. 3. Speak about ecocities; give reasons for and against living in one.
Writing	Independent Task: Write about things that people should do to conserve resources and preserve the environment.
Skill focus	Using Detailed Examples: Learn how to use and recognize examples that support and illustrate main points.
Unit 6	Philanthropy
Listening	Campus Conversation: Listen to a student talk to an advisor about volunteering. Academic Listening: Listen to a lecture about philanthropist Andrew Carnegie.
Reading	Article: Read about a school's volunteer program.
Speaking	Independent Task: Speak about whether or not people should give their time and money to help others.
Writing	Integrated Task: 1. Read about charitable giving. 2. Listen to a report about a charitable donation. 3. Write a summary of the reasons for charitable giving discussed in the reading; use examples from the listening.
Skill focus	Identifying and Using Rhetorical Structure: Learn how to recognize and use rhetorical structures in a whole written or spoken passage or part of one.
Unit 7	Education
Listening	Campus Conversation: Listen to a student talk with an academic advisor about which classes to take. Academic Listening: Listen to a lecture about the differences between various teaching styles
Reading	Textbook Excerpt: Read about emotional intelligence.
Speaking	Integrated Task: 1. Read about motivation. 2. Listen to two students talk about a class project. 3. Compare the types of motivation discussed in the reading; use examples from the listening.
Writing	Independent Task: Write about two classes you had in elementary school; compare and contrast them.
Skill focus	Comparing and Contrasting: Learn how to recognize and discuss similarities and differences.
Unit 8	Food
Listening	Campus Conversation: Listen to a student and a resident assistant talk about different cuisine. Academic Listening: Listen to a show about a food trend.
Reading	Article: Read about the healthy food movement.
Speaking	Independent Task: Speak about the most memorable meal you have had.
Writing	Integrated Task: 1. Read a food critic article. 2. Listen to two students talk about food from their country. 3. Write a essay on two different modern food trends; debate on the advantages and disadvantages of each for health.
Skill focus	Summarizing: Learn how to understand critic and to report information, leaving out less important details.
Unit 9	Immigration



Listening	<p>Campus Conversation: Listen to a student and an admissions advisor talk about requirements for applying to law school.</p> <p>Academic Listening: Listen to an excerpt from a novel <i>about</i> immigrants.</p>
Reading Speaking	<p>History Article: Read about immigrants in early America.</p> <p>Integrated Task:</p> <ol style="list-style-type: none"> 1. Read about culture shock. 2. Listen to a novel excerpt about homesickness. 3. With a partner, perform a role play about culture shock.
Writing	<p>Independent Task: Give your opinion about the degree to which immigrants should adopt their new culture.</p>
Skill focus	<p>Using Context Clues: Learn how to use surrounding information to understand meaning, details, and inferences.</p>
Unit 10	
Listening	<p>Technology</p> <p>Campus Conversation: Listen to a student and a professor talk about an unfamiliar term used in class.</p> <p>Academic Listening: Listen to a discussion about pet peeves related to technology.</p>
Reading Speaking Writing	<p>Journal Entry: Read about Henry David Thoreau's experience of living alone in the woods.</p> <p>Independent Task: Speak about your reactions to new technologies.</p> <p>Integrated Task:</p> <ol style="list-style-type: none"> 1. Read about the effect of technology on social behavior. 2. Listen to a lecture about using the Internet to socialize. 3. Write about the impact of the Internet on society.
Skill focus	<p>Identifying and Using Cohesive Devices: Learn how to recognize and use terms that connect ideas.</p>

RESOURCES:

- Audio and Video Recordings
- Blackboard
- Magazines and Newspapers
- Literature, scientific books
- Dictionaries

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score



SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



**GENERAL CHEMISTRY II**

CODE: PRE-202

CREDITS: 4

PREREQUISITE: PRE-102

DESCRIPTION OF THE COURSE:

This subject represents the second part of the inorganic chemistry course that is given to students of the health sciences.

GENERAL OBJECTIVES:

The present program has been designed to complete the general basis initiated in the course of General Chemistry I.

The themes: Acids, bases, and environmental contamination have general objectives of interest for students of the career of natural sciences: To analyze the acid-basic reactions and to present the facts that contribute to the contamination of the environment; and specific and practical solutions for this problem.

In general, the Chemistry II course intends to train students for a better understanding of the chemical changes (reactions) that matter undergoes, to give a more complete view of the wide variety of matter that exists and the great importance that encloses the application of chemical knowledge in the present world.

TEACHING METHODOLOGY:

The student will be motivated to participate in the discussions of the topics within different activities. The lectures will be accompanied with drawings, graphics, etc. Most topics will be supported with clear and simple experiments.

Every unit will include:

- Bibliographical research
- Exposition of every research work assigned
- Discussion of problems and exercises in class

CONTENTS:

- Speed of reaction
- Features that influence the speed of the reaction
- Energy of activation
- Chain reaction
- Law of Mass action
- Chemical Equilibrium
- Analysis of the process of Haber
- Quantitative aspects of the Chemical Equilibrium Law
- Features that influence the stage of Chemical Equilibrium of reactions
- Ionic Equilibrium
- Autoprotolysis of water
- Definition and classification of acids and bases
- Indicators
- Real, Potential and Total acidity and basidity
- Normality of acid and basic solutions
- Naturalization and valorization
- Tampon solutions
- Actions of acids and bases in living tissue
- First principle of Thermodynamics
- Enthalpy of reactions
- Free energy
- Electrochemical reactions
- Electrolytic cells
- Quantitative aspects Industrial application of Electrolysis
- Galvanic cells
- General characteristics of metals
- General metallurgy
- Representative metals:
 - Physical and chemical properties
 - Obtention and usage
- Transition metals:
 - Physical and chemical properties
 - Obtention and usage
- Representative non-metallic elements
- Properties and usage of the most important compounds

**EVALUATION:**

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

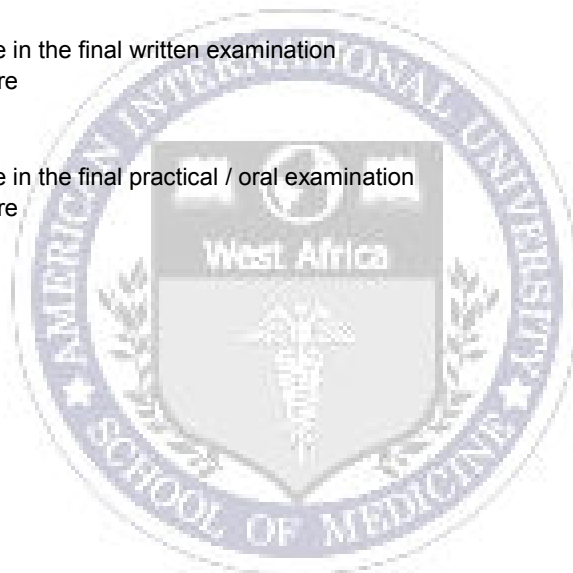
SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





BASIC PHYSICS I
CODE: PRE-203
CREDITS: 4
PREREQUISITE: PRE-103

DESCRIPTION OF THE COURSE:

This subject constitutes the first part of the course of Physics that is given in the Basic Cycle and covers units that study kinematics, dynamics, statics, hydraulics, temperature, as well as work and energy.

GENERAL OBJECTIVES:

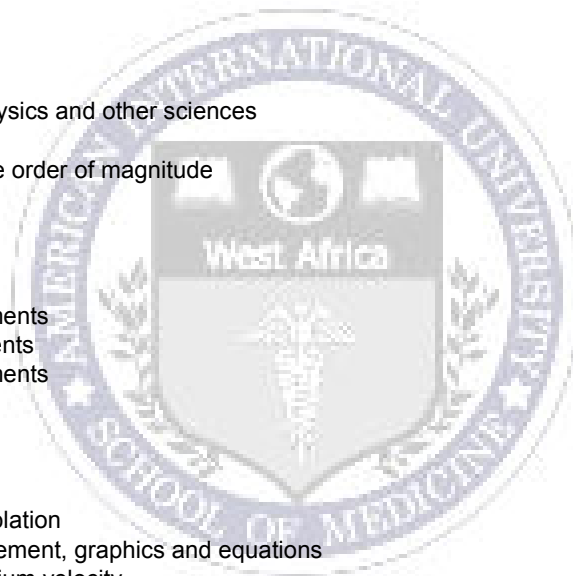
- To identify the fundamental principles of physics, understanding it as a coherent unity
- To establish the relation between Physics, Technology, and Medicine
- To show critical and objective attitudes dealing with natural phenomena
- To apply the acquired knowledge to the study of biophysics
- To value the importance of research in the modern world

TEACHING METHODOLOGY:

The methodology of the course is aimed at the integration of the student with the different activities of the class, through the dynamic participation of discussions, research topics and the practical application of the acquired theoretical knowledge.

CONTENTS:

- What is physics?
- The branches of physics
- The relation between physics and other sciences
- The tools in physics
- The power of ten and the order of magnitude
- Meaningful figures
- Errors
- Vectors
- Physical magnitudes
- Space and its measurements
- Time and its measurements
- Matter and its measurements
- Direct Proportion
- Inverse Proportion
- Graphical representation
- Linearization of graphics
- Interpolation and extrapolation
- Uniform Rectilinear Movement, graphics and equations
- Instant velocity and medium velocity
- Movement with a constant acceleration
- Graphics and equation
- Gravitational fall
- Curvilinear movement
- Circle movement
- Parabolic movement
- Simple harmonic movement
- Forces
- Forces of reasoning
- Centripetal force
- Elastic force
- Gravitational force
- Concurrent forces
- Parallel forces
- Gravity center and mass center
- First condition of equilibrium
- Moment of Force
- Second condition of equilibrium
- Work exerted by the force
- Energy Concept





- Mechanical Potency
- Mechanical energy
- Kinetic energy
- Potential energy
- Relation of mechanical energy
- Impulse
- Quantity of movement
- Collision
- Conservation of quantity of movement
- Pressure and Density
- Atmospheric Pressure
- Properties of fluids
- Principals of Pascal
- Principals of Archimedes
- Heat and temperature
- Thermometric scales
- Dilatation
- Specific heat
- Mechanical Equivalent of heat
- Heat measuring units
- Calorimetric methods
- Heat propagation
- Changes in stages
- Fusion heat, evaporation heat, combustion heat
- Boyle's law
- Gay-Lussac law
- The state of gases equation
- Heat and work
- Work exerted by a gas
- Isothermic, isobaric, and isochoric processes

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



CELLULAR BIOLOGY
CODE: PRE-204
CREDITS: 4
PREREQUISITE: PRE-104

DESCRIPTION OF THE COURSE:

This course is offered to students that will follow the Health careers. It consists of units that cover, in general terms:

- The prokaryotic and eukaryotic cells
- Modern methods of studying prokaryotic and eukaryotic cells
- Modern methods of studying the cells
- General view of the cell with the electronic microscope
- Structural and functional characters of the cellular membrane. Cytoplasm. Nucleus.
- Cellular division, Mitosis, Meiosis. Cytogenetics. Cytogetic action of radiation. Normal human caryotype. Human chromosomic abnormalities. Differentiation.
- Growing and renewal of the cellular population
- Cellular and molecular biology of specialized cells

GENERAL OBJECTIVES:

- To interpret the present concepts and theories concerning the knowledge of the cell
- To point out the investigators and the searching procedures that are used in cellular and molecular Biology
- To integrate the knowledge of structure, physical and chemical composition and the functions of the different cellular components that make the cell the basic unit of life
- To relate the physiological conditions of the organism with the stage of cells that conform them
- To recognize the importance of cellular biology and its application in the development of other sciences such as Biochemistry, Genetics, Embryology, and Pathology
- To accentuate the conditions of reasoning, observation and analysis as a base for interpreting and evaluating the experiences of daily life

METHODOLOGY:

The methodology is aimed towards active teaching, through the participation of students in discussions and oral & written presentations of seminars, so that students develop skills working with current bibliography in the field of cellular biology. Students will participate in the execution of experiences in the activities that will take place. The professor's explanations will be illustrated by graphics, slides and electronic micrographs.

CONTENTS:

- Introduction and history of the Cellular Biology
- General structure of the prokaryotic and eukaryotic cell
- Form and size of the cell; Living cell
- Fixed cell
- Instrumental analysis of biologic structures
- Microscope
- Electronic microscopes
- X-Ray defraction
- Cytologic and Cytochemical methods
- Fixing and staining
- Cellular fractioning
- Immunocytochemistry
- Radioautography
- Chemical component of the cell
- Water, salts, and ions
- Proteins
- Carbohydrates
- Lipids and Nucleic acids
- Cellular membrane
- Molecular organization
- Molecular models of the cellular membrane
- Cellular permeability
- Specialization of the membrane and intercellular communications
- Outer layers and cellular recognition
- Cytoplasm
- The Cytosol and Cytoskeleton
- Microtubules



- Microtubular organelles
- Cilia, flagella and centriole
- Microfilaments
- Cyclosis and ameboid movement
- Endoplasmatic reticulum, morphology, and function
- Golgi Complex and cellular secretion, Cytochemistry morphology, and functions
- Mitochondria, morphology, structure, organization, function and origin of mitochondria
- Cellular respiration
- Lysosomes and peroxidases
- Characteristics of lysosomes
- Peroxisomes
- Vegetal cell
- The cellular wall
- Chloroplasts and others plastides
- Molecular organization and structure of the chloroplast
- Photosynthesis and chloroplasts
- The chloroplast as semiautonomous organelle
- The nucleus in interphase
- Nuclear sheath
- Chromatine
- The nucleosome
- The chromosomes
- Heterochromatine, facultative and constitutive
- The nucleolus
- The cellular cycle
- The DNA Replication
- Mitosis and cellular division
- Events of mitosis
- Organization and function of the mitotic apparatus
- Meiosis and sexual reproduction
- Composition of Mitosis and Meiosis
- General description of Meiosis
- Genetics consequences of meiosis
- Biochemistry of meiosis
- Fundaments of cytogenetics
- Chromosomic changes, action of mutagens
- Cytogenetics and evolution
- Normal human karyotype
- Karyotype preparation
- Banding technique
- Sexual chromosomes and sexual determination
- Chromosomic abnormalities
- Genetics code; Characteristics
- Human chromosomes and genetic map
- Mutations and genetic code
- Genetic Engineering
- Transcription and RNA processing in prokaryotic and eukaryotic cells
- Ribosomes
- Protein ribosomes
- Biogenesis of ribosomes
- Protein synthesis
- Regulation of the genes in prokaryotic and eukaryotic cells
- Cellular differentiation
- General characteristics
- Nucleocytoplasmatic interactions
- Mechanism of cellular differentiation
- Cellular and molecular biology of the muscle
- Structure, molecular organization and mechanism of contraction of the muscular fiber
- Energetic regulation of the contraction
- Cellular and molecular neurobiology
- Organization and function of the nervous fiber



- Synaptic transmission and structure of synapsis
- Synaptic vesicles and liberation of the neurotransmitter
- Synaptic receptors and physiological responses

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

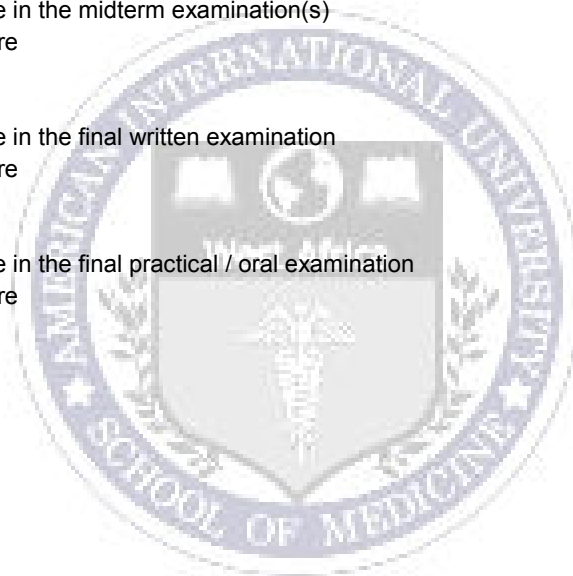
SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



**MATHEMATICAL REASONING II**

CODE: PRE-205

CREDITS: 4

PREREQUISITE: PRE-105

GENERAL OBJECTIVES:

- To provide students with the basic mathematical knowledge which allows them to start their mathematical studies in a superior level
- To stimulate and develop in the student the original activity of reasoning to be applied in practical situations
- To recognize the importance of mathematics in its application in different areas, such as, Management, Economy, Computer Science, etc.

CONTENTS:

- Problem solving principles
- Polya's principles
- Two closely related tactics, guessing and making a list
- New tactic: Drawing a diagram
- Draw a diagram, follow dependencies
- Patterns and representative special cases
- Ruling out possibilities
- The pigeonhole principle
- Mathematical reasoning
- Structures and proofs
- Inductive or deductive?
- Direct proof
- Proof by contrapositive
- Proof review
- Inductive proof
- Starting with set theory
- Language of set theory
- Basic definitions
- Translating sets into (and from) English
- Relations between and operations on sets
- Relations and Venn diagrams
- Translating relations into (and from) English
- Consequences of the set relation definitions
- Operations
- Induction: Sum of first n integers
- From sets to whole numbers
- Addition of whole numbers
- Subtraction of whole numbers
- Multiplication of whole numbers
- Division and exponentials
- Write $2 + 3$ using disjoint sets.
- Illustrate $2 + 3$ using Peano arithmetic.
- Illustrate $2 \cdot 3$ using Peano arithmetic. You do not need to expand addition.
- Illustrate $(1 \cdot 2) \cdot 3 = 1 \cdot (2 \cdot 3)$ using a volume of size six.
- Problem solving
- Set theory
- Operations and whole numbers
- Digits, bases, and operations
- Positional Numbers
- Converting Between Bases
- Operating on Numbers
- Divisibility
- Primes
- Factorization
- Modular Arithmetic
- Divisibility Rules
- A familiar incomplete integer
- GCD, LCM, and $ax+by=c$
- Modular arithmetic





- Divisibility rules
- Greatest common divisor
- Least common multiple
- Euclidean GCD algorithm
- Linear Diophantine equations
- Computing GCDs
- Computing LCMs
- Linear Diophantine equations
- Linear Diophantine equations
- Into real numbers
- Rational numbers
- Review of rational arithmetic
- Complex fractions
- Diophantine equations
- Irrationals and decimals
- Real numbers
- Exponents and roots
- Decimal expansions and percentages
- Fixed and floating-point arithmetic
- Operation with matrixes
- Addition of matrixes. Properties
- The opposite of a matrix under operation of addition
- Subtraction of matrixes
- Numerical multiples or scalars. Multiplication. Properties
- Inverse of matrix
- Whole positive potency. Properties
- Determinants. Origin of concept of determinant
- Definition. Properties
- Rule of Sarrus
- Different methods to the development of determinants
- Application of determinants to systems of lineal equations
- Rule of Cramer
- Concept of limit in a function. Theorems about limits of functions
- Limit of algebraic expressions
- Continuous function in a point
- Continuous function in an interval
- Increments
- Derivative by the methods of increments
- Formulae of derivation
- Geometric interpretation of the derivative
- Integration
- Simple integrals. Formulae
- Introduction to Mathematical applications in Medicine

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score



SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





UNIVERSAL HISTORY
CODE: PRE-206
CREDITS: 3
PREREQUISITE: NONE

COURSE DESCRIPTION: The course on Universal Social History presents a global and analytical synthesis of the principal economic, social and political process of Universal History, allowing a critical comprehension of the reality of the contemporary world.

GENERAL OBJECTIVES:

- To evaluate the capacity of human kind to create its own conditions of existence
- To examine the development of each one of the ways of production in universal history, pointing out its essential characteristics and stages they present
- To analyze the most representative social-economic formations of each one of the ways of production
- To establish the development of the peripheral formations in function of the central economies requirements in each one of the stages of capitalism
- In a critical way, to reconsider present-day reality upon the basis of the understanding of the global historical processes
- To utilize research techniques in the interpretation of texts, production of sketches, charts and maps.

TEACHING METHODOLOGY:

The course is designed starting from the basic lineament of AIUTG' s General Cycle, allowing the student to be the subject of its own apprenticeship. Therefore the teaching methodology is based upon active participation of the student through the coordination of activities that will allow the discussions about the **CONTENTS** and lectures of the topics on the program.

The methodology will be organized as follows:

- Bibliographic and research of information about the **CONTENTS** of the program;
- Interpretation of texts, maps, sketches and charts;
- Elaboration of maps, sketches and charts related to the **CONTENTS** of the program;
- Writing and exposition of reading reports;
- Debating about the results of student's work;
- Brief expositions of the teacher about the most important elements of each process.

MINIMUM ABILITIES REQUIRED FOR THE STUDY OF HISTORY:

- Ability to obtain central subjects Extraction of secondary subjects
- Extraction of central ideas of each secondary subject
- Organization of all these ideas in a structured logical way

ABILITIES TO WORK WITH THE TEXT BOOK:

- To be able to use the indexes
- To make differentiation between facts and conclusions
- To make relationship between facts and conclusions To highlight the principal conclusions
- To combine the principal text with complimentary material
- To perform self control or self evaluation of knowledge

ABILITY TO WORK WITH HISTORICAL MAPS:

- To select correct maps according to the subject and ability to place oneself within it.
- To interpret the legend.

CONTENTS:

UNIT I: WESTERN EUROPE FROM X TO XV CENTURY

GENERAL OBJECTIVES:

- To establish general characteristics of the transition period from feudalism to capitalism
- To outline the particularities of the manufacture era of capitalism
- To evaluate relation metropolis-colony during the initial era of capitalism

CONTENTS:

- Revision of basic conceptualizations in historical analysis,
- Criteria of periodicity of historic processes,
- The Crusades, causes and consequences in an economical and political plan
- Reappearance of commerce and of the cities
- Causes of mercantile development, progress in agriculture
- Cultural and scientific renaissance
- The beginning of a new European mentality
- Exploitation and trips of discovery



SPECIFIC OBJECTIVES:

- To ground the dominion of the characteristics of historical process
- To analyze causes and consequences of crusades, emphasizing dissolvent effects on feudal relationship of production
- To examine the reappearance characteristics of European cities and their close relation with the reactivation of commerce
- To analyze meaning and impact of cultural and scientific renaissance in a world of ideas in Europe

ACTIVITIES:

- To discuss in class the study objective of historian and its role in Society
- To consult biographies in the unit CONTENTS
- To write in its notebook a resume about causes that pushed the mercantile process in Western Europe, underlining the progress in agriculture to be discussed in class
- To present in a panel the consequences of mercantile development in Western Europe taking into account the following points: First manifestations of Capitalism, formation of mercantile companies; appearance of absolute monarchies, exploratory trips and discoveries
- To discuss the exposition in order to present conclusion
- To write a brief commentary about the significance and importance of the Renaissance and the Religious Reform for its discussion in class
- To establish relationship between Religious Reform and War among farmers in Germany

UNIT II: CAPITALIST PRODUCTION MEANS

MAIN OBJECTIVES:

- To establish general characteristics of Capitalist Production Means.
- To underline the particularities of manufacture stage of capitalism.
- Evaluate the relationship metropolis-colony during manufacture stage.

CONTENTS:

- General conceptualizations on the mean of capitalist means. Their universal character, social relations of production. New form of State, social, and politic representing body (Parliament, Congress)
- Manufacture stage of capitalism, modalities in relations of production
- Protectionist politics and mercantile companies
- Beginning of English and French colonization in America. XVII and XVIII centuries
- Colonization models

SPECIFIC OBJECTIVES:

- To specify the model of production. Capitalist: Social relations of production, social classes, forms of extradition of economic surplus and type of state
- To analyze the characteristics of manufacture stage of Capitalism
- To differentiate models of French, English, and Spanish colonization determining their economic and social consequences
- To distinguish characteristics of Industrial Revolutionary Stage from the manufacture stage

ACTIVITIES:

- To consult bibliographies on program CONTENTS
- To comment in class the universal character of Capitalist's production means in comparison with other means of production studied until now, to extract conclusions
- To write in your notebook the main characteristics of Capitalist's Production Mean taking into account:
 - Social relations of production, development of productive force, extraction of gain of capitalist state, present them in your classroom to extract conclusion
- To discuss in class the different modalities in the relations of production during the manufacture stage to extract conclusion
- To write a brief comment about protectionist politics and the mercantile companies for its discussion in the class
- To discuss in class the relation between economic matrix of metropolis, its colonial politics and the colonial organization to extract conclusions
- To elaborate explained scheme on the different modalities of colonial exploitation outlining the epoch, place, geography and economical as well as social consequences for its presentation and discussion in class.

UNIT III: THE BOURGEOISIE REVOLUTIONS AND THE INDUSTRIAL REVOLUTION

MAIN OBJECTIVES:

- To evaluate the reach of the bourgeoisie Revolutions in England and France
- To determinate the development characteristics of capitalism during the Industrial Revolution and its consequences
- To establish the metropolis-colony relationship during this stage

CONTENTS:



- Bourgeoisie Revolution. Bourgeoisie and political power. Bourgeoisie and Nation
- English Revolution, causes and characteristics. Political and social tendencies. Consequences
- American colonies' Independence: United States and Haiti. Independence Movements of the French colonies in America
- Industrial Revolution. Scientific and technological development. Changes in the relationships of production
- Development and Underdevelopment: Colonial and neocolonial zones. Global work distribution

SPECIFIC OBJECTIVES:

- To characterize the Bourgeoisie Revolutions
- To differentiate between the French and English Revolution
- To evaluate the Bourgeoisie Revolutions consequences for the American continent
- To evaluate the consequences of the development of capitalism during the Industrial Revolution period for the colonial and neocolonial zones

ACTIVITIES:

- To consult bibliographies about the Unit' s CONTENTS
- To observe and comment on slides about the theme
- To write down the definitions of Bourgeoisie Revolution for class discussions
- To discuss in class the relationship between Nation and Bourgeoisie in order to obtain conclusions
- To prepare an explanatory scheme about the causes, characteristics, political and social tendencies and consequences of the English Revolution for class discussion and exposition
- To prepare a scheme about the English political process for class discussion
- To discuss in class the difference between articulation and structure in order to extract conclusions
- To write a brief essay about the preliminary political and ideological expressions of the French Revolution for class discussion and exposition
- To prepare a scheme about the political process of the French Revolution for class discussion and exposition
- To prepare an explanatory chart about the internal and external causes, characteristics, phases, measures and changes in each phase, continental and universal consequences of the French Revolution for class discussion
- To draw a map pointing out the continental and universal reach of the French Revolution to be explained in class
- To compare the French and English Revolutions in order to obtain conclusions in class
- To write a brief comment about the Bourgeoisie Revolutions in Europe during the XIX century for class discussion and exposition
- To write a brief essay about the principal philosophical and political thoughts of the Bourgeoisie Revolutions in Europe to be discussed and exposed in class
- To discuss in class the consequences of the French and English bourgeoisie revolutions in the colonial zones in order to extract conclusions.
- To prepare a comparative chart about the independence process of the American colonies signaling, period, zone, phases, groups in struggle and objectives in each phase, outstanding personalities, predominant political ideas, achievements and limitations for class exposition and discussion.
- To discuss in class the situation of the manufacture industry, population and market, in order to extract conclusions about the basis in which the Industrial Revolution was generated.
- To prepare an explanatory chart about the technologic and scientific development reached during the Industrial Revolution specifically in the agricultural and industrial areas, its consequences in the social relationships of production and the development of the productive forces, for class discussion and exposition.
- To write a brief essay about the most important political and philosophical ideas of the period, the appearance and development of worker movements to be exposed and explained in class.
- To discuss in class the following terms in order to extract conclusions: development, underdevelopment, colonial and neocolonial dominion.
- To write a brief comment about the universal division of work as a consequence of the Industrial Revolution, its implications for the central and peripheral countries for class discussion.
- To draw a map signaling the colonial and neocolonial zones, countries where they belong and characteristics of the colonial and neocolonial exploitation in order to be explained in class.

UNIT IV: WORLD WAR I AND THE 1929 WORLD CRISIS**TERMINAL OBJECTIVES:**

- To establish the causes of World War I.
- To evaluate World War I consequences for the central and peripheral countries.
- To examine the causes and consequences of the 1929 world crisis.

CONTENTS:

- Imperialism: political and economic characteristics. Causes for World War I
- Consequences of World War I: appearance of new world powers and distribution of the world; Socialist Revolution in Russia
- Causes of the 1929 world crisis: relationship between production and the execution of production in the Market
- Consequences of the 1929 World Crisis for the central and peripheral countries



SPECIFIC OBJECTIVES:

- To identify the principal political, economic and social characteristics of the period previous to World War I signaling its causes
- To determine the consequences of World War I for the central and peripheral countries
- To analyze the causes of the 1929 World Crisis
- To identify the consequences of the 1929 World Crisis for the central and peripheral countries

ACTIVITIES:

- To consult bibliography about the Unit's CONTENTS
- To observe and comment about the theme's slides
- To write a brief essay about the principal economic characteristics and political expressions during the period that preceded World War I for class exposition
- To discuss in class about the world causes and its relationship with imperialism in order to extract conclusions
- To draw a map showing all the countries that were involved in World War I, the confronted parties, litigant zones, to be explained in class
- To write a brief essay about the principal political and philosophical ideas during World War I for class exposition
- To draw a map showing the world's political reorganization after World War I to be compared to the map of litigant zones
- To write a brief comment about World War I consequences for the central and peripheral countries for class exposition
- To discuss in class about the relationships that emerged from World War I between the imperialist countries and the underdeveloped countries in order to extract conclusions
- To write a brief essay about the relationship between World War I and the Russian Revolution for class exposition.
- To discuss in class about the relationship between production and over production during capitalism in order to extract conclusions.
- To write a brief comment about the causes of the 1929 World Crisis taking into consideration the production aspects and market production for class exposition.
- To discuss in class about the consequences of the 1929 World Crisis for the central countries, especially for the United States, in order to extract conclusions.
- To write a brief essay about the political consequences for the Latin American countries of the 1929 World Crisis, highlighting the reappearance of popular regimens and dictatorships for class exposition.

UNIT V: WORLD WAR II AND ITS CONSEQUENCES

MAIN OBJECTIVES:

- Evaluate the causes and consequences of World War II
- Examine in a large range the world situation from the age 60 of the present century

CONTENTS:

- Causes of World War II
- Consequence in a medium and large range of World War II

SPECIFIC OBJECTIVES:

- To analyze the causes of World War II
- To determine the intermediate and longterm consequences of World War II

ACTIVITIES:

- To consult bibliography about the unit's CONTENTS
- To discuss in Class about the causes of World War II in order to obtain conclusions about the characteristics and nature of Fascism and its role in the preparation and outbreak of World War II
- To draw a map showing the countries in conflict and struggling zones in order to be explained in class.
- To write a brief comment about the political and philosophical ideas that predominated during World War II for class exposition
- To draw a map showing the new distribution of the world, new countries and colonial zones at the end of World War II for class exposition
- To discuss in class about the relationship between World War II and the Chinese Revolution in order to extract conclusions
- To prepare an explanatory chart about the decolonization process in Asia and Africa after World War II for class discussion
- To draw a map showing the zones that were in a decolonization process after World War II for class exposition
- To discuss in class about the consequences of Fascism for Europe in order to extract conclusions about the situation in Germany and Italy

UNIT VI: THE COLD WAR AND THE BIPOLAR CONFRONTATION BETWEEN THE UNITED STATES AND THE SOVIET BLOCK

MAIN OBJECTIVES:



To evaluate the general characteristics of the World Order that emerges as a consequence of World War II and the ideological, economic, political and military confrontation between the United States and the Soviet Union; the arms race and its consequences; the conformation of the third world block and the conflicts in Korea, Vietnam and the Middle East crisis.

CONTENTS:

- General concepts about the Cold War. The arms race and the military industrial complex.
- Economic global situation of the 1960 's, 70 's and 80 's
- The oil crisis and its geopolitical implications
- The Latin American and world political conflicts of limited impact. The Cuban Revolution
- The Missiles crisis. The Vietnam War and the Middle East Crisis.

SPECIFIC OBJECTIVES:

- To establish political and social characteristics of the Cold War
- To analyze the arms race implications and its economic consequences for the United States and the ex Soviet Union
- To characterize the fundamental features of the World's economy during this period
- To analyze the 70 's oil crisis repercussions for the economy of the occidental powers
- To emphasize the most relevant aspects of the appointed conflicts, highlighting the indirect confrontation of the two superpowers, through the logistic support of the parties in conflict

ACTIVITIES:

- To consult bibliography related to the themes in order to extract conclusions
- To discuss in class about the strategies used by the two world poles in order to define its respective influential zones.
- To write a report about the industrial complexities of the various North American military projects and its repercussions in economy.
- To discuss in class about the economic consequences for the Soviet Union of the execution of an economic politic based on confrontation or the military rivaling with the United States.
- To analyze in class the principal coordinates that defined the world's economic happening of the years 1969, 1970 and 1980.
- To discuss in class about the general characteristics of the models, theory and economic alternatives imposed in Latin America in the appointed period.
- To elaborate reports for class discussion about the causes of the appointed conflicts and the interests at game of the super powers.

UNIT VII: THE END OF THE COLD WAR AND PROFILES OF THE NEW WORLD ORDER

MAIN OBJECTIVES:

- To evaluate the causes and consequences of the Socialist Block collapse
- To characterize the Globalization process and the conformation of important market blocks. The end of the socialist ideology and the new paradigms
- To understand current Boom-Bust economic cycles and factors driving them

CONTENTS:

- The Gorbachev reforms and the Perestroika
- The breaking up of the Soviet Union and the revival of nationalism
- Conformation of important market blocks and its geopolitical implications
- Profiles of the World's New Order
- The new economic, political and ideological paradigms and their implications for the peripheral countries.

MAIN OBJECTIVES:

- To define the Perestroika concept and analysis of its characteristics
- To analyze the fragmentation process of the URSS and the causes of the revival of nationalism
- To characterize the integration and composition of the market coalitions
- To analyze the new political order of the world, post Cold War
- To analyze the fundamental paradigms of neo-liberalism: opening, competition, total quality, integration, globalization and others

ACTIVITIES:

- To discuss in class about the repercussions of the reforms made by Gorbachev in the Soviet Union and its global reach
- To elaborate sketch of Eastern Europe's actual political division
- To report about current international conflicts
- To discuss in class about the composition of economic coalitions, its characteristics and tributes in order to establish comparative advantages and its weaknesses
- To comment and analyze in class the fundamentals of the New World Order, starting with the hegemony of the United States as the unquestionable leader of today's world
- To make book report about the work "The End of History" for class discussion of its fundamentals



- To discuss in class about the problems faced by ideologies seen in the light of Fukuyama 's theories and analyze the ideological obliqueness of their own statements

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

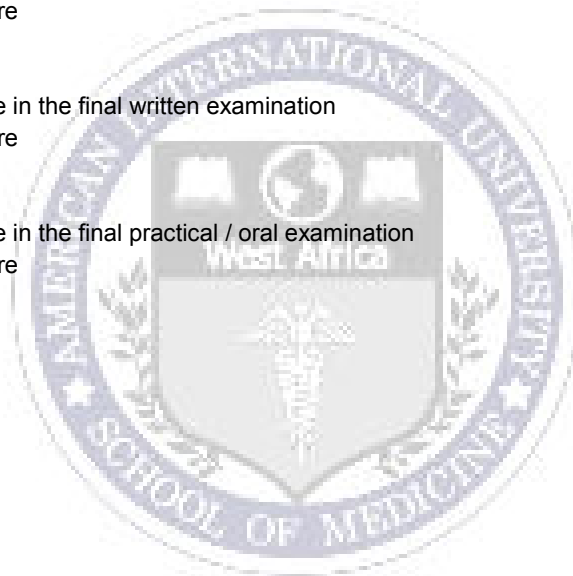
SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





FRENCH II
CODE: PRE-207
CREDIT: 3
PREREQUISITE: PRE-107

DESCRIPTION OF THE COURSE:

This syllabus contains the use of formal and informal expressions that will enable the student to interact with effective communication skills in different situations, such as, family, work and social circumstances.

For this purpose it contains a repertoire of the basic vocabulary, as well as the grammar that will permit an adequate use of the language at a beginning level.

CONTENTS: will be enriched with simple readings of different aspects of everyday life.

GENERAL OBJECTIVES:

- Incorporation of learning communication techniques
- Integration, in a communicative context, of the learning of the different components that make up the French language

METHODOLOGY:

The professor will create and guide the following classroom events:

- Motivation of students for a maximum learning results
- Aural information of the objectives of each class
- Establish the relation between formal and informal language
- Discussion or explanation of each concept
- Presentation of extra examples, if necessary
- Direct discussion groups, pointing out perfection, and making the corresponding corrections, always stimulating group participation
- Will direct active participation in the creation or reading of dialogues. Evaluate the achievement of the objective

ACTIVITIES:

- Dialogues between students.
- Visit to a supermarket.
- Visit to a store/shopping mall.
- Dramatizations.
- Written Exercises.
- Visit to a restaurant.

RESOURCES:

- Recordings.
- Blackboard.
- Magazines.
- Newspapers.
- Dictionaries.

CONTENTS:

LESSON 1: A Foreign Language
GRAMMAR EXERCISES -
LESSON 2: Advertising
GRAMMAR EXERCISES -
LESSON 3: The Moment of Truth
GRAMMAR EXERCISES -
LESSON 4: Courtesy or Intelligence
GRAMMAR EXERCISES -
LESSON 5: Debate
GRAMMAR EXERCISES -
LESSON 6: Debate
GRAMMAR EXERCISES -
LESSON 7: At the Lawyer's House
GRAMMAR EXERCISES -
LESSON 8: At the Barbershop
GRAMMAR EXERCISES -



LESSON 9: On the Telephone
GRAMMAR EXERCISES -
LESSON 10: At the Cashier of a Small Hotel
GRAMMAR EXERCISES -
LESSON 11: At the Dentist's Office
GRAMMAR EXERCISES -
LESSON 12: At the Museum
GRAMMAR EXERCISES -
LESSON 13: At a Cafe
GRAMMAR EXERCISES -
LESSON 14: At the Table
GRAMMAR EXERCISES -
LESSON 15: At the Lawyer's House
GRAMMAR EXERCISES -
LESSON 16: At the Bank
GRAMMAR EXERCISES -
LESSON 17: On the Telephone
GRAMMAR EXERCISES -
LESSON 18: At a Hotel
GRAMMAR EXERCISES -
LESSON 19: At the Emergency Room
GRAMMAR EXERCISES -
LESSON 20: At a scientific conference
GRAMMAR EXERCISES -
LESSON 21: At a consult
GRAMMAR EXERCISES -
LESSON 22: News report
GRAMMAR EXERCISES -

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



ENGLISH III
CODE: PRE-301
CREDITS: 3
PREREQUISITE: PRE-201

DESCRIPTION OF THE COURSE:

The English language course is divided into three levels, taught during three consecutive trimesters: English I (Intermediate level), English II (High Intermediate level), and English III (Advanced level).

The syllabus is conceived so that it concentrates on the formal academic English used in lectures as well as the informal English used in normal campus life by students, professors and other college or university employees.

GENERAL OBJECTIVES:

The course objectives are:

- to enhance students' ability to read, write, speak and understand English used in college or university
- to prepare the students for successfully managing the challenges of studying at a university with courses conducted in English, focusing on proficiency in reading large amounts of scientific material, completing written assignments, exams, and projects, and delivering academic oral presentations

TEACHING METHODOLOGY:

The teaching methodology is specially designed to foster advanced skills in:

- Reading
- Listening
- Speaking
- Writing

and secondary and support skills including: grammar, vocabulary, pronunciation, spelling, note-taking, summarizing, synthesizing, making connections, outlining, skimming, scanning and mind mapping.

- Enhancement of linguistic skills (reading, speaking, and writing), for effective communication in an academic setting
- Development of students' reading skills, focusing to make reading more efficient through improving the acquirement of information from the read material and through developing critical thinking and reading to learn skills
- Training advanced reading methods, such as: pre-viewing, reading faster, using context, making inferences, skimming, scanning, making connections, summarizing, taking notes, and synthesizing
- Practice advanced listening skills and the exercise with various types of questions:
 - basic comprehension questions
 - pragmatic understanding questions
 - connecting information questions
- Developing reading and listening skills allowing efficient:
 - understanding facts and details
 - identifying main ideas
 - identifying negative facts
 - locating referents
 - understanding vocabulary in context
 - making inferences
 - determining attitude and purpose
 - understanding implication
 - paraphrasing
 - connecting content
 - understanding coherence
 - following logic
 - summarizing important points
- Improving students' speaking skills through promoting simple, correct, and organized discourse
- Developing students' capacity to correctly elaborate, both orally and in writing, complex sentence structures and use high-level vocabulary
- Training students' ability to express opinions on given topics and to provide elaborate arguments, explanations, and examples supporting their opinions, both orally and in writing



- Teach strategies to help students organize and focus their writing
- Practice with students independent and integrated writing of essays
- Revise the most important grammar points: verb tenses, nouns, pronouns, modals, parts of a sentence, verbs, prepositions, gerunds, infinitives, articles, noun clauses, adjective clauses, adverb clauses, prepositional phrases, comparatives, superlatives, conjunctions, connectives, parallel structures, word order, word forms, word choice, and redundancy.
- Train students to be comfortable and confident using a wide range of grammatical structures, to demonstrate effective use of grammar, and exhibit a high degree of automaticity, with good control of basic and complex structures, demonstrating syntactic variety, appropriate word choice, and idiomatity.
- Permanently focus developing students' vocabulary, particularly the academic, and form the students into the techniques of vocabulary development / specific vocabulary building program.
- Improve pronunciation, and train students' speaking skills (well-paced, clear, and articulate speech, with effective intonation and rhythm, supportive of the message)
- Exercise other skills as: note-taking, summarizing, paraphrasing, outlining, mind-mapping, synthesizing, skimming, and scanning, and other supportive skills for an effective English student and communicator.
- Each course unit is supplemented by grammar revisions and vocabulary enhancement sessions.

CONTENTS (Advanced Level):

Unit 1	Addiction
Listening	Campus Conversation: Listen to a student and a professor discuss addiction. Academic Listening: Listen to a radio interview about forms of addiction
Reading Speaking	Newspaper Article: Read about famous people with addiction Integrated Task: 1. Read an interview with an Internet addiction counselor. 2. Listen to an addict tell their story. 3. Speak about the effects of Internet addiction and compulsive shopping.
Writing	Independent Task: Write about alcoholism and compare it to other types of addiction; tell which you think is more severe.
Skill focus	Comparing and Contrasting: Learn how to recognize and discuss similarities and differences.
Unit 2	Communities
Listening	Campus Conversation: Listen to students discussing a search for housing. Academic Listening: Listen to a radio interview describing life in a planned community.
Reading Speaking	Book Review: Read about Americans living in poverty. Independent Task: Speak about the principles that you think are most important for a utopian community.
Writing	Integrated Task: 1. Read about the community of Celebration, Florida, and the New Urbanism movement. 2. Listen to a lecture on urban sprawl. 3. Write about New Urbanism and urban sprawl.
Skill focus	Using Detailed Examples: Learn how to use and recognize examples that support and illustrate general statements.
Unit 3	Personality
Listening	Campus Conversation: Listen to a student talk with her professor about dropping a course. Academic Listening: Listen to a radio commentary contrasting optimistic and pessimistic personalities.
Reading Speaking	Book Excerpt: Read recommendations for attaining success and self-confidence. Integrated Task: 1. Read about classifications of shyness. 2. Listen to a conversation between students who exemplify types of shyness. 3. Speak about which type of shyness applies to each student.
Writing	Independent Task: Write about challenges and strategies related to academic success.
Skill focus	Making Inferences: Learn how to make guesses about information not stated directly.
Unit 4	Trends
Listening	Campus Conversation: Listen to a student and a professor talk about buying a used car on eBay. Academic Listening: Listen to a radio interview about changes in criminal behavior.
Reading Speaking	Essay: Read a current News/Internet article on technology Independent Task: Speak about the reasons behind the popularity of modern technological devices.



Writing	Integrated Task: 1. Read about the categories of people who start trends by word of mouth. 2. Listen to a lecture about the American Revolutionary War hero Paul Revere. 3. Write about how Revere exemplifies one category from the reading.
Skill focus	Identifying and Using Main Ideas and Details: Learn how to use main ideas and details to understand or express important points.
Unit 5	Cross-Cultural Insights
Listening	Campus Conversation: Listen to a student talk with a counselor about a family crisis. Academic Listening: Listen to a radio interview about <i>feng shui</i> .
Reading Speaking	Newspaper/Internet Article: Read about a multicultural project for immigrant students. Integrated Task: 1. Read about the Victorian style of design. 2. Listen to a lecture about a famous architect's use of <i>feng shui</i> principles. 3. Speak about redesigning an area using either Victorian design or <i>feng shui</i> .
Writing	Independent Task: Write about a country or culture that has made significant contributions throughout history
Skill focus	Using Context Clues: Learn how to use surrounding information to understand meaning, details, and inferences.
Unit 6	Travel
Listening	Campus Conversation: Listen to a student asking his professor for advice about travel destinations Academic Listening: Listen to a radio interview about travel
Reading Speaking Writing	Encyclopedia Entry: Read an excerpt from a travel magazine/blog. Independent Task: Speak about the importance of travel in a person's life. Integrated Task: 1. Read about the different travel destinations. 2. Listen to a speaker talk about his experience travelling. 3. Write about ways to travel around the world.
Skill focus	Summarizing: Learn how to understand summaries and to report information, leaving out less important details.
Unit 7	The Workplace
Listening	Campus Conversation: Listen to a job interview between a student and a library supervisor. Academic Listening: Listen to a call-in radio program about workplace monitoring.
Reading Speaking	Textbook Passage: Read about how Coca-Cola builds an international workforce. Integrated Task: 1. Read about the reasons that companies monitor employees. 2. Listen to a radio interview about the problems with workplace monitoring. 3. Speak about a monitoring program that could address security concerns and respect privacy.
Writing	Independent Task: Write about your ideal job.
Skill focus	Skimming and Scanning: Learn how to find information quickly.
Unit 8	Perspectives on Healthcare
Listening	Campus Conversation: Listen to a student and a doctor talk about issues in Healthcare. Academic Listening: Listen to a radio interview about new advancements in Medicine.
Reading Speaking Writing	Newspaper Article: Read about the experiences of Doctors in various healthcare settings. Independent Task: Speak about your views on Healthcare. Integrated Task: 1. Read a Red Cross physician's letter to a newspaper editor. 2. Listen to a radio interview with a "Doctors without Borders" physician. 3. Write about the contrasting positions of the Red Cross and Doctors without Borders.
Skill focus	Paraphrasing: Learn how to restate ideas and information without changing the original meaning.
Unit 9	The Arts
Listening	Campus Conversation: Listen to a student talk with a career counselor about her choice for a future career. Academic Listening: Listen to a radio interview about the effects of arts education on the brain.
Reading	Novel Excerpt: Read about a cellist who discovers how to reconnect with his music.



- Speaking** **Integrated Task:**
1. Read a newspaper editorial that opposes a tax increase to fund arts curricula.
2. Listen to two students discuss the effects of music on their reasoning abilities.
3. Speak about the merits of arts education.
- Writing** **Independent Task:** Write about the importance of music in your life.
Skill focus **Identifying and Using Cohesive Devices:** Learn how to recognize and use terms that connect ideas.

- Unit 10** **Famous Speeches**
Listening **Campus Conversation:** Listen to excerpts from speeches at academic year opening ceremony.
Academic Listening: Listen to a speech of a Nobel Prize laureate for Medicine
Reading **Report:** Read an essay about a famous speech and analysis of its rhetoric.
Speaking **Independent Task:** Debate on speech's significance and consequences.
Writing **Integrated Task:**
1. Read about rhetoric techniques.
2. Listen to a recording of a famous speech.
3. Write about the usage of rhetoric techniques in the speech.
- Skill focus** **Identifying and Using Rhetorical Structure:** Learn how to recognize and use rhetorical structures in a whole written or spoken passage or part of one.

RESOURCES:

- Audio and Video Recordings
- Blackboard
- Magazines and Newspapers
- Literature, scientific books
- Dictionaries

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

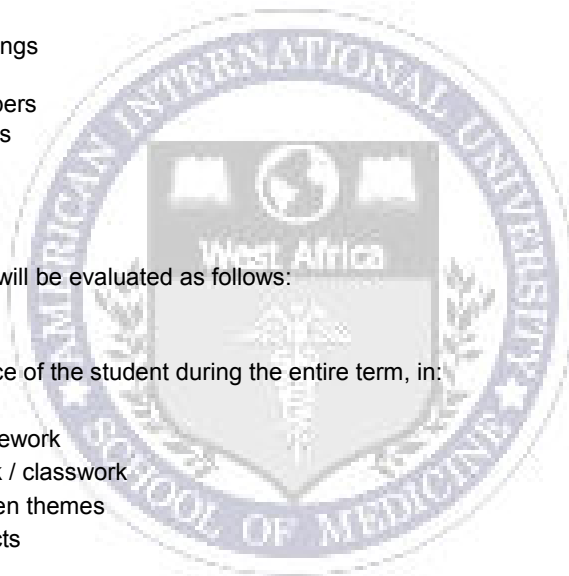
SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





ORGANIC CHEMISTRY I
CODE: PRE-302
CREDITS: 6
PREREQUISITE: PRE-202

DESCRIPTION OF THE COURSE:

This subject is designed so that the student acquires knowledge that will form the base to subsequent studies in Biochemistry.

GENERAL OBJECTIVES:

The principal purpose of this program is to generate the necessary basis for a maximum comprehension of Biochemistry and Physiology.

Knowing that the function of living organisms is the result of chemical reactivity of the wide variety of molecules that form the actual compounds of plants, animals and man - biomolecules; it's easier to understand the importance of acquiring a wide and clear knowledge of organic chemistry, before going deeper into the study of living beings.

METHODOLOGY:

We believe in active student participation in order achieve greater understanding of the subject. The student will be required to research suitable texts, and also interview health professionals discovering the medical application of certain theoretical concepts. This research work shall be presented to the professor in writing and also orally before his fellow students.

The theoretical explanations of the professor are supported by laboratory experiments.

CONTENTS:

- Length and importance of Organic Chemistry
- Atomic structure of Carbon
- Chemical bonds of Carbon
- Theory of Hybridization of orbitals
- Some important considerations about organic molecules
- Concept of Isomerism
- Concept of resonance and fragrance
- Classification
- Difference in reactivity among Hydrocarbons
 - Petroleum
 - Nomenclature
 - Physical properties
 - Reactions of obtention
 - Sources and uses
- Nomenclature of alkanes
 - Physical properties
 - Reactions of obtention
 - Natural source and principal uses
- Nomenclature of Cycle-alkanes
 - Some structural considerations about Cycle-alkanes
 - Reactions of obtention
 - Natural sources and principal uses
- Nomenclature of alkenes
 - Physical properties
 - Reactions of obtention
 - Natural sources and principal uses
- Nomenclature of derivatives Mono-, Di-, and Poli-substitutes
 - Physical properties
- Chemical reactions of Benzene: Mono-, Di-, and Poli-Substituted derivatives
- Chemical reactions of Alkanes, Alkenes, Cycle-alkenes and alkenes
 - Nomenclature and general structure
 - Physical and chemical properties
 - Sources and principal uses
 - Reactions of obtention
- Chemical properties of alcohols, phenols
 - General structure and physical properties
 - Nomenclature



- Sources and uses
- Some particularities of Ethyl alcohol
 - Reactions of obtention
 - General structure and physical properties
 - Nomenclatures
 - Sources and uses
- Reactions of obtention of Aldehyde and ketones
 - Oxidation-Reduction reactions. Characteristics of Aldehydes
 - Characteristic reactions of Aldehydes and ketones
- Structure of Carboxylic acids and their physical properties
 - Nomenclature
 - Sources and uses
 - Reactions of obtention
 - Chemical properties
- Structure of Amines
 - Nomenclature
 - Sources and uses
 - Reactions of obtention
 - Chemical properties
- Structure of Amides
 - Nomenclature
 - Sources and uses
 - Reactions of obtention
 - Chemical properties

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



BASIC PHYSICS II
CODE: PRE-303
CREDITS: 4
PREREQUISITE: PRE-203

DESCRIPTION OF THE COURSE:

This subject constitutes the second part of the Physics course that is given during the Basic Science Cycle. It covers units that study the Physics of light, sound, electricity, and the advances in Modern Physics.

GENERAL OBJECTIVES:

- To identify the fundamental principles of Physics understanding it as a coherent unit
- To establish the relation between Physics, Technology, and Medicine
- To show critical and objective attitudes on the natural phenomena
- To apply the acquired knowledge in the Biophysical studies
- To value the importance of research in the modern world

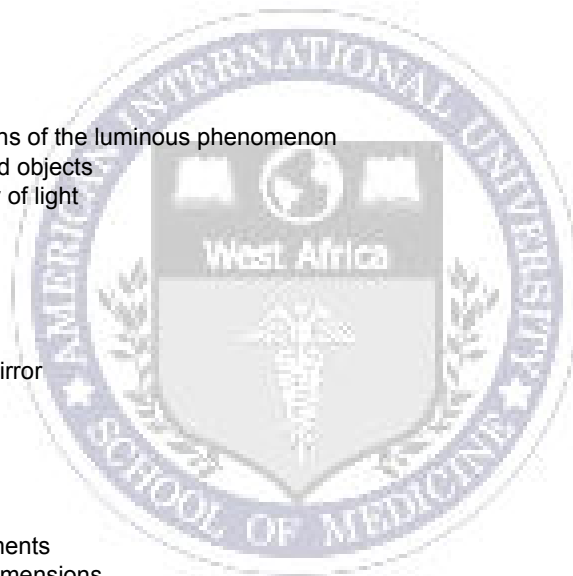
TEACHING METHODOLOGY:

The methodology of the course is aimed at the integration of the student with the different activities of the class, through the dynamic participation of discussions, research topics and the practical application of the acquired theoretical knowledge.

BIBLIOGRAPHY:

CONTENTS:

- Introduction to Optics
- History on the conceptions of the luminous phenomenon
- Luminous and illuminated objects
- Propagation and velocity of light
- Photometry
- Luminous intensity
- Illumination
- Reflection
- Reflection of light
- Flat mirror. Focus of a mirror
- Refraction
- Refraction of light
- Laws of refraction
- Internal total reflection
- Dispersion of light
- Lenses and optic instruments
- Waves in one and two dimensions
- Characteristic phenomena of the wave
- Diffraction
- Interference
- Polarization
- Wave sounds
- Sound speed, Reflection-echo
- Physiologic qualities of sound
- Height
- Intensity
- Timbre
- Doppler effect
- Electric charge, electrolyzing by contact
- Conductor and insulator
- Electrolyzing by induction
- Coulomb Law
- Electric field
- Calculation of the electric field
- Lines of forces
- Field and charge of the conductor
- The power of points





- The difference of potential
- Electric potential energy
- Equipotential Surfaces
- Condensers
- Association of condensers
- Energy of a condenser
- Dielectric condenser
- Electric current
- Electric circuits
- Ohm Law
- Electric resistance
- Resistance in series and parallel
- Electrical instruments
- Electromotive force
- Electrolysis
- Magnetic field
- Electromagnetism
- Conductor force
- Magnetic field of a current
- Induced electromotive force
- Faraday Law
- Leutz force
- The transformer
- Electromagnetic waves
- Quantification of energy
- The structure of the atom, nucleus, and radioactivity

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment

**GENERAL PSYCHOLOGY****CODE: PRE-304****CREDITS: 3****PREREQUISITE: NONE****DESCRIPTION OF THE COURSE:**

- To obtain a global vision of the human being and his development, understanding the human as a biopsychosocial unit
- To know the principles and fundamental methods of Scientific Psychology
- To know and understand the different aspects involved in human behavior and be able to understand the relations between the different aspects and its consequences in conduct
- To learn to analyze human behavior in everyday life, including the comprehension of behavior itself

TEACHING METHODOLOGY:

- Theoretical expositions by the professor, panel discussions by guest speakers
- Group activities
- Practical and bibliographical investigations and projects
- Controlled lectures on the CONTENTS of the class
- Videos, slides and transparencies

CONTENTS:

- Conceptualization. Domain and field of action. Historic development. Schools and currents in Psychology. Multidisciplinary approach. Research methods in Psychology. The Ethics and the psychology researcher. Areas of specialization of Psychology.
- Development of behavior. Heritage. Heredity-Environment-Maturity Interaction. Maturity of behavioral norms. Language, Maturity, and Learning. Socialization. Culture and the Process of Socialization. The Family and the Socialization.
- The nervous system. Anatomic parts and functioning. Body-Behavior relations.
- Human motivation. Physiological Deprivation. Instinctive behavior. Feelings and emotions. Development of the emotional behavior. Physiological rules of the emotional response. Emotion and health. Psychosomatic reactions. Social motives and attitudes. Classification of the social grounds. Origin of social grounds. Attitudes.
- Beginning and basic phenomena of learning. The learning behavior. Conditioning in Psychology. Classic conditioning. Operant conditioning. Learning by observation. Memory and forgetting. Variables in the human learning. Aspects of the learning submitted to controversy. Specific modalities of the learning.
- Signs, symbols, and meanings. The process of the development of thoughts. Formation and meaning of concepts. Thought and consciousness of the voluntary acts. Resolutions of problems. Language. Symbolic learning. Language and thought. Language and verbal behavior.
- Sensorial bases of perception. Vision. Hearing. The other senses. Development of perception. Facts that influence perception. Perceptive alterations. Attention.
- Quantitative methods in Psychology. The scientific measurement and the problem of errors. Individual and group differences. Difficulties in measurement in Psychology. The Tests. The psychological tests. Qualities of tests. Classification of tests.
- The intelligent behavior. The differences in intelligence. Modern concepts of intelligence. Deviation of normal intelligence. Suitabilities. Interest. Creativity.
- Etymology and Definition. Characteristics of Personality. Theories of Personality. Structure and development of personality. Valorization of Personality.
- Affectivity and adjustments of Personality. Affective behavior. Varieties of affective expression. Frustration and Conflict. Nature of frustration. Reactions to frustration and to Conflict. Defensive mechanisms. Effects of frustration in Man. Personal adjustment.
- Characteristics of the well adjusted person. Beliefs and popular misconceptions in mental diseases. Promotion of mental health. Non-adaptive behavior. Classification of Psychosis and Neurosis. Treatment. Development of modern methods of treatment. Types of therapies. Readjustment of the mental patient.
- Social links. Interpersonal relations.
- Social behavior in groups.
- Social influences in social behavior and in attitudes.
- Attitudes and stereotypes. Formation and change of attitudes.

EVALUATION:

Students' academic performance will be evaluated as follows:

**SCORE 1**

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

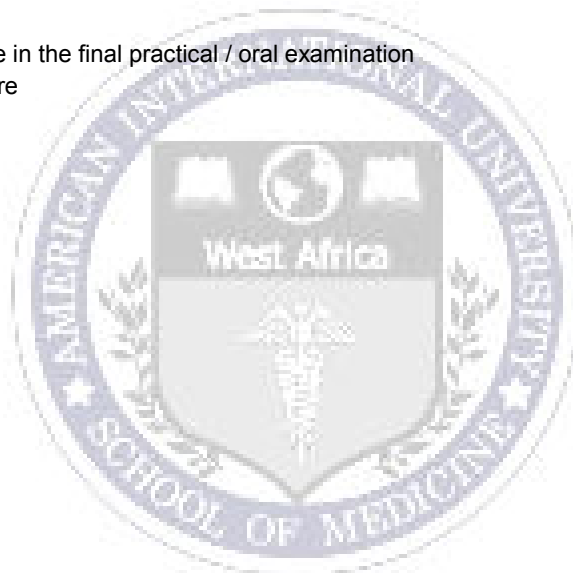
SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





INTRODUCTION TO COMPUTER INFORMATION SYSTEMS
CODE: PRE-305
CREDITS: 2
PREREQUISITE: NONE

DESCRIPTION THE COURSE:

This course is basic for to all students of the university. This course is basic for other theoretical and practical courses about the computer. Since this subject is a complement of the career, it will only cover the concepts of processing data and its present application, without going into the technical aspects.

GENERAL OBJECTIVES:

To provide students with the basic knowledge of Data Processing: concepts, terminologies, equipment, uses and applications, and to also introduce them to the BASIC program.

CONTENTS:

- Definition of Data Processing; Capacity of the computer; Organization of a computer system; Differences in the computer system; Why computerization is necessary nowadays; Terms and key concepts. Examples.
- Activity/Operation of DP; Inner and outer necessities; Basic cycle of DP; Entry, process, exit; DP Methods Terms and key concepts. Examples.
- History of DP; Computer generations; Characteristics of a computer; Types of computer; Some known computer brands; Elements required for a computer system; terms and key concepts. Examples.
- Definition of Hardware; Functions; Entry-storage; Process- exit; periferic equipment and its uses; Central Processing Unit (CPU), Inner representation of Data; Characteristics .of the magnetic disc; terminology and key concepts. Examples.
- Software of the computer manufacturer; Elements of an operative system; Software of the user; Programs and applications, Programming languages; Compiler; terms and key concepts. Examples.
- Field, register, File; Reference from the manual to what is computerized; types of files; advantages and disadvantages; file of tapes and discs; Data base (DBMS); terms and key concepts. Examples. Definition of the problem; Analysis of the system; Implementation of the system; A case; Terms and key concepts. Examples and exercises.
- Constants.
- Alphabetical and numerical variables.
- Expressions, operators and operand.
- The Print instruction.
- The Input instruction.
- The End instruction.
- The For Next instruction. Example of its use.
- Introduction to Repairs. Uni-Bi dimensionals. Examples.
- Some mathematical functions.
- Definition, concept of Data communication, Communication equipment. Nets; Distributed Data process; Terms and key concepts. Examples.
- Typical structure of a computer center; Digitators, Programmers, Analysts, Managers, etc. and their responsibilities. Terms and key concepts. Examples.
- Tomorrow's technology application and effect on Society.

ACTIVITIES:

- Exposition, dialogue between educator - student;
- Team expositions of CONTENTS of the Curriculum;
- Reading tests on relevant topics of the Curriculum;
- Elaboration of a research

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





AFRICAN HISTORY
CODE: PRE-306
CREDITS: 3
PREREQUISITE: PRE-206

DESCRIPTION OF THE COURSE:

The African Social History course offers a global view of the social process in African History. It permits the student to synthesize the internal and external factors that originated different historical African processes, contributing to the analysis and comprehension of the present African society founded on the knowledge of its past.

GENERAL OBJECTIVES:

- To analyze as a whole the historical development of the economical, social and political African processes, and its relation with worldwide historical processes
- To critically interpret the current African society founded on the comprehension of the historical processes
- To manifest the critical attitudes as a social being against the problems of the African society with a solution in mind
- To develop investigation techniques for interpretation of texts, reading, and elaboration of outlines, graphics, and maps

TEACHING METHODOLOGY:

The basic regulations of General Cycle propose that students must be the subjects, not the objects of their own learning process. Taking this into account, the CONTENTS of this course help students to be part of the active teaching-learning process.

- To accomplish this objective, the methodology of the course will be aimed towards the following **ACTIVITIES**:
- Bibliographical consultations on the CONTENTS of the units
- Elaboration of summaries, graphics, maps and reports related to the CONTENTS of the program
- Interpretation, group or individual discussions of texts, graphics and maps according to the objectives of the program
- Discussions concerning the work done by students
- Elaboration of research on topics related to the CONTENTS of the program

UNIT I: Exploring the Diversity of Africa

GENERAL OBJECTIVES: To introduce the students to Africa in a manner that convinces them of the importance of studying the continent.

- **Diversity of Africa:** Africa, the second largest continent in the world, is a very diverse continent. This diversity is articulated in its physical geography and climate; in its plurality of cultures, traditions, beliefs, values, religions, and artistic expressions; in its many modes of economic production, distribution, and consumption; in its diverse social and political structures and practices.
- **Examine Africa's Diversity** through a collection of images meant to illustrate Africa's diversity, rich history, and global connections, and to question some of the common stereotypes about Africa.

SPECIFIC OBJECTIVES: Through a series of four map images, students will be exposed to African history from ancient times to the present. In addition, students will see the various and important ways that Africa is connected to the rest of the world through trade networks and the exchange of ideas, knowledge, and beliefs.

- **Africa has a rich history:** Africa has a dynamic history. Africa was the birthplace of human societies; it has been home to many great civilizations; its history has been shaped by contact with others through great migrations, wars, slavery, colonialism, the Cold War, and the waxing and waning of state systems.
- **Africa Globally Connected:** For millennia, Africa has interacted with the outside world. This interaction has facilitated many African contributions and *exports* to the world, such as agricultural products, minerals and other material goods, as well as knowledge and cultural expressions. This interaction has also allowed African societies to benefit from *imports* from the outside world, such as information and other technologies. Special emphasis will be given to Africa's contributions to and *trade* with North America.

ACTIVITIES <http://exploringafrica.matrix.msu.edu/students/curriculum/m1/exercise1.php>

- To Examine the quantity and consequence of the many languages of Africa
- To evaluate the geography of Africa and its implications on society
- To discuss the many different types of African Cultures
- To differentiate the varying African Religions throughout the regions of Africa
- Make a timeline and a graphic organizer, which the students should fill in as they explore the maps. A class discussion with the teacher can be held.
 - Map 1: Ancient History to the 1400s
 - Map 2: African History 1400s to 1800s
 - Map 3: African History 1800s to 1960s



- Map 4: African History 1960s to Present

UNIT II: Studying Africa through the Social Studies

GENERAL OBJECTIVES:

- **Location and spatial relations:** This lesson will investigate Africa's spatial location in relationship to other spaces and locations in the world. Maps, visual representations of space and locations, will be an essential tool in undertaking this investigation.
- **Places and Regions:** In the locations or places where they live, people organize themselves in social, economic, cultural, and political institutions. This lesson will introduce five regions in Africa: North, West, Central, East, and Southern. Later lessons will investigate the physical, human, and social characteristics of these regions.
- **Physical Systems:** This lesson, with the help of maps and photographs, will introduce the physical environment of Africa. We will begin to study the impact that Africa's richly diverse environment has on the way people live and organize themselves into societies. The lesson will also explore the ways in which people look at, understand, and use the environments in which they live.
- **Movement:** This lesson will explore the importance of the movement of people, goods, services, and ideas in Africa, from early times until the present.
- **Human-Environmental Interaction:** This lesson will begin the study of key environmental relationships and issues in Africa. This is a theme that will be returned to throughout our study of Africa.

SPECIFIC OBJECTIVES:

- Identify important landforms/ physical features of Africa and show how they influence what people do and how they organize themselves politically, socially, and economically.
- Identify the different climates and vegetation and show how they affect people in what they do and how they organize themselves politically, socially, and economically.
- Locate Africa on a World map and make basic inferences on how location affects Africa's global and inter-regional relationships.
- Describe the effects of human usage of landscapes over time.
- Identify important mineral and agricultural resources of Africa
- Recognize, through extensive map work, the geographic diversity of Africa and its central place in world geography.

UNIT III: Early African History, African History, the Era of Global Encroachment, African Economies, African Politics and Government

GENERAL OBJECTIVES:

- **Early African History** until 16th Century CE will discuss some of both the more well-known and less well-known points of interest throughout the history of Africa until the arrival of Europeans in sub-Saharan Africa in the 15th century CE. This period of African history has often been grossly misrepresented as timeless, stagnate, and primitive. In an attempt to better represent early African history. We look at several of these great civilizations and kingdoms also highlight other less well-known stories.
- **African History, the Era of Global Encroachment** will discuss the more recent history of Africa from approximately the 15th century to the present. This period of African history is marked by European involvement in Africa—first through the early trade era (including the Atlantic Slave Trade), then through colonialism, and finally during the era of African independence. This module will look at some of the motivations, methods and impacts of European involvement in Africa. The focus in this module on interaction between Europe and Africa runs the risk of giving students the impression that there were not other factors and interactions in African history during this time period. Indeed, Africa continued to be in contact with certain regions of Asia and also had significant interactions within the African continent itself. Yet the presence of European powers in Africa from the 15th century to the present was undeniably a factor that significantly altered the course of African history. Economically, culturally, linguistically, politically, environmentally, and artistically, Europe has had a major impact on all regions of Africa. Yet Africans have asserted themselves too to maintain their own ways of life or blend them with the new European influences. In many ways, this history of interaction between Africa and Europe has made Africa what she is today. To introduce students to the economics of Africa, the economic processes, that is the production and distribution of goods and services, at the local, national, regional, and continental levels, and will emphasize Africa's economic global connections. To introduce students to political systems, systems of government, and politics in Africa beginning with pre-colonial times and ending with the post-colonial period. In addressing political and governmental processes in contemporary Africa, three themes will be featured. First, political systems, structures, and practices are historically situated. To understand politics and governance in Africa today, students have to have an understanding of the pre-colonial, and more importantly, colonial contexts in which contemporary political structures and practices were formed. Secondly, there is great political diversity in Africa. Consequently, it is incorrect to generalize about politics in Africa from either experiences of crisis or examples of political stability. Thirdly, African politics are closely connected to the global political economy.

**SPECIFIC OBJECTIVES:**

- An understanding of some of the prominent tools that historians use to learn about the past.
- An understanding of how each historian has his/her own unique interpretations, perspectives, and biases in the work that s/he does, and how that history is constantly being revised with new evidence and interpretations.
- Knowledge of five great kingdoms and civilizations on the African continent prior to the 16th century CE.
- Knowledge of other areas of Africa that existed during the same time frame as the great kingdoms and civilizations, which are generally less well-known but important parts of African history.
- An understanding of some of the positive and negative aspects of the concepts of culture and society.
- A sense of the wide range of topics that can be described as aspects of a particular culture or society.
- An understanding of the diversity of languages in Africa, and how the study of language can be useful in understanding cultures and societies.
- A few examples of what family and community life can be like in various regions in Africa.
- An evaluation of how the students' own culture is similar to and different from those learned about in Africa
- Understanding of how the Atlantic Slave Trade began, operated, and came to an end.
- Understanding the impact of the Atlantic Slave Trade and how it has affected the world today.
- Understanding of European colonialism in Africa and its impact.
- Understanding of the post-colonial period in Africa, including independence, new political regimes, and social change.
- In addressing economic processes and practices in contemporary Africa three underlying themes will be featured.
 - First, economic systems and practices in Africa are historically situated. That is, to understand current economics students have to understand the historical contexts in which economic practices and relationships developed.
 - Secondly, there is a great deal of economic diversity in Africa.
 - Thirdly, Africa's economies are closely linked to the global economy.
- To develop a clearer understanding of the rich diversity of political systems and practice in Africa.
- Increase appreciation for the importance of historical legacy in framing contemporary political practice in Africa.
- To form a better understanding of the complexity of political issues confronting contemporary African nation-states.
- Create a keener awareness of the role of the global political economy in shaping contemporary African politics.
- Develop the ability to think more critically about political problems, practice and relationships in Africa

ACTIVITIES:

- To discuss how the basic needs and wants met in African economies
- To evaluate the main modes/methods of production in Africa
- To describe how innovations in agriculture and food production lead to economic specialization and diversification in Africa
- To identify what role did trade play in the development of African kingdoms
- To identify the economic impact of the slave trade on Africa
- To evaluate how did colonialism change economic practice in African countries
- To discuss in class how has Globalization affected African economies
- To identify why do human societies need governments
- To identify the types of governments that were developed in pre-colonial Africa
- To discuss the relationship between economic systems and political practice in Africa
- To evaluate if European colonial powers developed similar political systems in their African colonies
- To determine the political legacy of the colonial political system for independent African governments
- To identify three main systems of governments that developed in Africa in the first 30 years after independence
- To identify Africa's Second Independence/Liberation
- To debate the function and goals of the Organization of African Unity and how these goals relate to the idea of Pan Africanism
- Discuss the impact of the Cold War on Africa

UNIT IV: Studying Africa through the Humanities: African Literatures, African Art, African Music, Religion in Africa, Africa and the World**GENERAL OBJECTIVES:**

- **African Literatures** will introduce students to the beauty and diversity of African literatures. The lesson will allow students to read works of literature from Southern, West, East, North, and Central Africa. Students will also be exposed to the different genres of African literatures.
- **The study of African art** will highlight the visual arts of the African continent, including historical and contemporary developments. Students will be able to explore the rich artistic history of Africa and learn about the different meanings and uses art can serve for individuals and societies in Africa.



- **The study into African music** will explore the role of music in African Society in a way that will arouse interest and highlight the utilitarian and the aesthetic value of music among African cultures. This unit will adopt social and historical lenses through which African society and its music can be better understood.
- **Religion in Africa:** will introduce students to the rich and diverse tradition of religious belief and practice in Africa. This will be accomplished through the use of narrative, maps, and photographs.
- **Africa and the World:** is intended to explore the movement and dispersion of peoples of African descent throughout the world. In the study of the African diaspora, the focus often tends to be on slavery, the trade in peoples that transported millions of Africans to different parts of the world. Here, we have tried to offer a more detailed sketch of the diaspora, describing the movement of Africans before and after slavery.

SPECIFIC OBJECTIVES:

- To identify the types of literatures and literary genres do we find being produced by African writers
- To discuss some of the themes explored in African literatures
- Identify a few of the authors producing literature in Africa
- To learn more about African literatures
- To gain an appreciation for the diversity of literatures written by African authors.
- To form an understanding of a few of the themes explored in literature from Africa.
- To practice in reading comprehension.
- To further knowledge of different literary genres.
- To deepen students' understanding of the visual arts of Africa and specific historical and cultural context of different art traditions.
- To examine how we can look at art works to learn about people's ideas about beauty, history, authority, politics and religion.
- To make students aware of how objects can have diverse and multiple roles and that in many instances they are used in important religious, social or political events, where they 'come alive.'
- Allow students to explore the similarities and differences between their cultures and African cultures
- Why is religion so important in African societies?
- What are the common characteristics of indigenous African religions?
- What are the roles of ancestors and healing in indigenous African religions?
- How was Islam introduced into various parts of Africa?
- What impact have indigenous African traditions had on Islam as practiced in Africa?
- Why has the rich tradition of Christianity in Africa often remained unknown to Christians in Europe and the Americas?
- Why have so many African Christians joined African Independent Churches in the last 100 years?
- A clearer understanding of the rich diversity of religious traditions and practices in Africa.
- A basic understanding and appreciation for indigenous African religious beliefs and practices.
- A clearer understanding of the role that Islam has and continues to play in a diversity of African countries and societies.
- A basic understanding of the history and development of Christianity in Africa.
- An appreciation for the ability of African societies to adapt and contribute to the practice of Christianity and Islam in Africa.
- When, why and how Africans and peoples of African descent were transported, or moved freely, from Africa to other countries.
- The conditions in which peoples of African origin lived in the new countries.
- The contributions that Africans have made to world history.
- The movement of people back to Africa

ACTIVITIES:

- Reading African Poetry
- Listening to famous African Folktales
- To read in class excerpts of well known African Novels
- To read and discuss in class various African Short Stories
- To read excerpts of African Autobiographies
- To analyze different pieces of African Art
- Explore African musical traditions.
- Engage students in discussion on why it is important for them to know and understand other musical traditions, in this case, those traditions from Africa and their connection to other traditions in the world today.
- Investigate as a class and in small groups the functions of music in African society and how different economic, political and religious practices of all people in the Americas, and of European colonizers in Africa, have made an impact on the nature of Africa's musical practices today.
- To know and understand the role of music in African societies
- To know and understand about musical traditions of Africa
- To learn about African music and its people
- The basic tenants of each faith tradition



- The development of these traditions within given African historical contexts
- The dynamic character of each tradition within changing historical contexts
- The impact of African religious and cultural beliefs and practices on Islam and Christianity-imported religions- and vice-versa.
- Similarities among religious traditions in Africa.
- To define the African diaspora and how it occurred
- What are some of the ways and reasons that Africans left Africa and settled in other parts of the world
- Describe what was life like for Africans and people of African descent living in these places
- Evaluate contributions did Africans and people of African descent make to world history

UNIT V: Regional Perspectives

GENERAL OBJECTIVES:

This unit introduces students to the geographic, social, political, and economic characteristics based on regions throughout Africa. Through the learning activities, students will explore the region's diversity in climate, people, politics, and economics. Geographers and other social scientists (economists, political scientists, historians) usually divide the African continent into four to six regions. Given the social, cultural and economic diversity within each of these regions, the rationale for constructing these regions is primarily spatial location.

- Four regions: North Africa, West Africa, East Africa, Southern Africa
- Five regions: North Africa, West Africa, Central Africa, East Africa, Southern Africa
- Six regions: North Africa, West Africa, Central Africa, North East Africa, East Africa, Southern Africa

SPECIFIC OBJECTIVES:

- A clearer understanding of the concept of region and how this concept is articulated in West Africa.
- An appreciation for the importance of history, environment, and social factors in constructing the region of West Africa.
- The ability to assess the factors that have led to change within the West African region.
- The ability to think more critically about social and environmental processes as manifested within a geo-political region—West Africa.
- A clearer understanding of the concept of region and how this concept is articulated in southern Africa.
- An appreciation for the importance of history, environment and social factors in constructing the region of southern Africa.
- The ability to assess the factors that have led to change within the southern African region.
- The ability to think more critically about social and environmental processes as manifested within a geo-political region—southern Africa

ACTIVITIES:

- To identify each region of Africa as a distinct region of the world
- Make a chart of the kinds of diversity can be found within the each region of Africa
- To make a diagram of the topography, climate, rainfall, and vegetation like in the regions of Africa
- How has HIV/AIDS been dealt with in each region of Africa
- To determine are the primary economic resources of each of the regions of Africa
- To debate the importance of agriculture, mining, and industry in the regional economies
- To discuss in class how race, ethnicity, and language influenced the history of and current social structure and relationships in the region
- To evaluate the potential for regional political and economic integration in African regions

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- | | |
|---|------------------------------|
| • Class discussions | • Research papers / projects |
| • Elaborated papers / homework | • Seminars |
| • Execution of the lab work / classwork | • Quizzes sessions |
| • Team expositions on given themes | |
| • | |

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





FRENCH III
CODE: PRE-307
CREDITS: 3
PREREQUISITE: PRE-207

DESCRIPTION OF THE COURSE:

This syllabus contains the forms of basic expressions that will enable the student to communicate aurally, It also includes the necessary grammatical CONTENTS for the correct use of verbs and pronouns, as well as agreement of gender and number.

The CONTENTS will be enriched with simple readings of different aspects of everyday life.

GENERAL OBJECTIVES:

- To firmly establish the necessary skills for oral and written expression
- To increase the vocabulary repertoire through readings and oral and written exercises

METHODOLOGY:

The development of the course will basically be practical. The professor will guide the class sequence and will stimulate the active participation of the student.

The teaching of the grammatical aspects will be taught in an indirect way through texts previously selected. The professor will create and guide the following classroom events:

- Motivation of students for a maximum learning results
- Aural information of the objectives of each class
- Establish the relation between formal and informal language
- Discussion or explanation of each concept
- Presentation of extra examples, if necessary
- Direct discussion groups, pointing out perfection, and making the corresponding corrections, always stimulating group participation
- Will direct active participation in the creation or reading of dialogues
- Evaluate the achievement of the objective

ACTIVITIES:

- Dialogues between students
- Dramatizations
- Written Exercises

RESOURCES:

- Recordings
- Blackboard
- Magazines
- Newspapers
- Dictionaries
- Videos

CONTENTS:

A - COMMUNICATION CONTENTS

- Colloquial conversations
- Descriptions
- Narrations
- Reports
- Essays

B - GRAMMATICAL CONTENTS

LESSON 1: Customs - At the International Airport

GRAMMAR EXERCISES -

LESSON 2: Asking Directions

GRAMMAR EXERCISES -

LESSON 3: At the Hospital

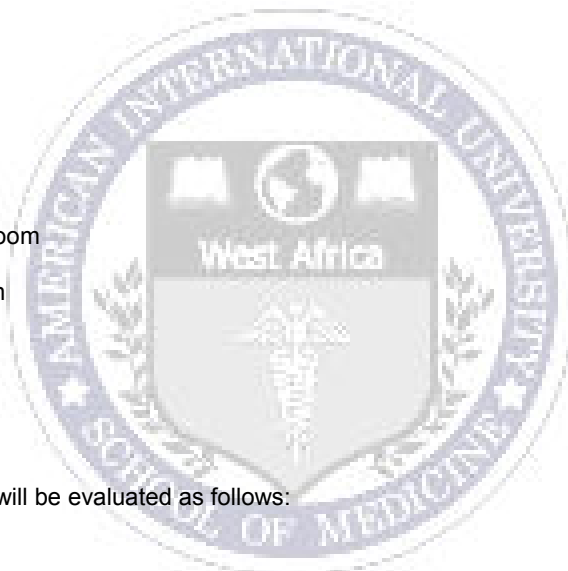
GRAMMAR EXERCISES -

LESSON 4: At the Bank

GRAMMAR EXERCISES -



LESSON 5: Self service
GRAMMAR EXERCISES -
LESSON 6: At the Restaurant
GRAMMAR EXERCISES -
LESSON 7: In the Room
GRAMMAR EXERCISES -
LESSON 8: In the Street
GRAMMAR EXERCISES -
LESSON 9: In a Debate
GRAMMAR EXERCISES -
LESSON 10: At a Wishing Fountain
GRAMMAR EXERCISES
LESSON 11: At Home
GRAMMAR EXERCISES -
LESSON 12: At the Door of the House
GRAMMAR EXERCISES -
LESSON 13: At the Party
GRAMMAR EXERCISES -
LESSON 14: At the Club
GRAMMAR EXERCISES -
LESSON 15: At the Grocery Store
GRAMMAR EXERCISES -
LESSON 16: At the Clinic
GRAMMAR EXERCISES -
LESSON 17: At Church
GRAMMAR EXERCISES -
LESSON 18: In a Emergency
GRAMMAR EXERCISES -
LESSON 19: At a Hospital
GRAMMAR EXERCISES -
LESSON 20: In the Emergency Room
GRAMMAR EXERCISES -
LESSON 21: The Operating Room
GRAMMAR EXERCISES -
LESSON 22: At the Doctors
GRAMMAR EXERCISES -

**EVALUATION:**

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





MEDICAL TERMINOLOGY
CODE: PRE-401
CREDITS: 4
PREREQUISITE: PRE-301

DESCRIPTION OF COURSE:

This syllabus contains the forms of technical expressions and vocabulary that will enable the student to communicate orally with patients, professors and fellow students.

It also includes the necessary grammatical contents and reviews for the correct use of verbs, pronouns, constructions, all in a medical context.

GENERAL OBJECTIVES:

- Integration of the knowledge acquired in previous levels with the exact comprehension of scientific texts
- Development of advanced levels of conversation that will allow students to manage in types of communications dealing with everyday language at hospitals

METHODOLOGY:

The development of the course will basically be practical. The professor will guide the class sequence and will stimulate the active participation of the student.

The teaching of the grammatical aspects will be taught in an indirect way through texts previously selected.

The professor will create and guide the following classroom events:

- Motivation of students for maximum learning results
- Oral information of the objectives of each class
- Establish the relation between formal and informal language
- Discussion or explanation of each concept
- Presentation of extra examples, if necessary
- Direct discussion groups, pointing out imperfections, and making the corresponding corrections, always stimulating group participation
- Will direct active participation in the creation or reading of dialogues
- Evaluate the achievement of the objective

ACTIVITIES:

- Dialogues between students
- Visits to laboratories
- Written and oral exercises
- Conferences

RESOURCES:

- Recordings
- Blackboard
- Magazines
- Newspapers
- Dictionaries

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2



Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment





ORGANIC CHEMISTRY II
CODE: PRE-402
CREDITS: 6
PREREQUISITE: PRE-302

DESCRIPTION OF THE COURSE:

This subject is designed so that the student acquires knowledge that will form the base to subsequent studies in Biochemistry.

GENERAL OBJECTIVES:

The principal purpose of this program is to generate the necessary basis for a maximum comprehension of Biochemistry and Physiology.

Knowing that the function of living organisms is the result of chemical reactivity of the wide variety of molecules that form the actual compounds of plants, animals and man - biomolecules; it's easier to understand the importance of acquiring a wide and clear knowledge of organic chemistry, before going deeper into the study of living beings.

METHODOLOGY:

We believe in active student participation in order to achieve greater understanding of the subject. The student will be required to research suitable texts, and also interview health professionals discovering the medical application of certain theoretical concepts. This research work shall be presented to the professor in writing and also orally before his fellow students.

The theoretical explanations of the professor are supported by laboratory experiments.

CONTENTS:

- Polymers
 - Nomenclature
 - Sources and uses
 - Reactions of obtention
 - Chemical properties
- Chemical properties of lipids
 - Fat and common oils
 - Index of Iodine and saponification
 - Soap and detergents
 - Waxes
- Classification and definition of saccharides
 - Monosaccharides
 - Disaccharides
 - Polysaccharides
 - General structure
- The most important steroid compounds
 - Function of the most important steroids in human beings
 - General Structure
 - Classification
 - Natural sources and uses
- Other important compounds
- Amino acids: Structure and nomenclature, chemical reactions
- Proteins, Peptide bond, definition, classification and general structure. Primary, secondary, tertiary and quaternary structure
 - Denaturalization
 - Separation
 - Structure

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions



Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



LEADERSHIP AND MODERNIZATION SEMINAR
CODE: PRE-405
CREDITS: 3
PREREQUISITE: NONE

DESCRIPTION OF COURSE:

This course is scheduled for the end of the professional cycle. This subject is a student managed workshop seminar. It is comprised of three aspects:

- the first studies leadership as a social phenomenon
- the second workshop develops skills and abilities in the formation of leaders
- the third attempts to make contact with people that have real or potential leadership qualities, in the development of African society in the scientific, professional, social, cultural, and political fields

GENERAL OBJECTIVES:

- To analyze the philosophical principles of the AMERICAN INTERNATIONAL UNIVERSITY emphasizing the aspects of leadership
- To evaluate leadership as a social phenomenon
- To develop skills and abilities in the formation of leaders
- To organize discussion workshops with guest personalities on scientific, professional, social, cultural, and political topics in order to debate topics related to their area of interest
- To show leadership qualities during the discussions and during the self managed organization of the workshop

METHODOLOGY:

The first part of the subject will be organized around the readings, lectures from guest speakers, discussions of the lectures and evaluations.

The second part will be a leadership workshop where there will be activities which will help in the development of leadership skills and abilities.

In the third part, the students will prepare a proposal for a discussion workshop with guests. This proposal should be discussed with the teacher in charge of the class and with the director of the school. Once the CONTENTS of the workshops and the guests are approved, the students will be responsible for contacting the guest, making the activities calendar, and participating in the discussions.

CONTENTS:

THE ASSIGNED BIBLIOGRAPHY FOR THE CONFERENCE LECTURES WILL BE CHOSEN BY EACH GUEST LECTURER.

UNIT I: LEADERSHIP AS A SOCIAL PHENOMENON

FINAL OBJECTIVES:

- To analyze leadership as a psychosocial phenomenon
- To determine the role of leadership in the history of African Society
- To evaluate the scope of the African crisis and the perspectives for change in African society
- To examine the philosophical principles of AIUTG relating them to the aspects of leadership

UNIT II: LEADERS ARE NOT BORN THEY ARE MADE

FINAL OBJECTIVES:

- To determine what skills and abilities are required in the formation of leaders

UNIT III: TODAY'S LEADERS

FINAL OBJECTIVES:

- To prepare an activities calendar for the discussion workshops with personalities, and leaders in the scientific, professional, social, cultural and political areas
- To show leadership abilities in the organization of the discussion workshops
- Participate in the ensuing discussions with the guests speakers

EVALUATION:

Students' academic performance will be evaluated as follows:



SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



HUMAN RELATIONS
CODE: PRE-406
CREDITS: 2
PREREQUISITE: PRE-106

DESCRIPTION OF THE COURSE:

Knowing that by nature man is a social being, this course was designed with the principal purpose of stressing the most important and necessary aspects, which are to know, apply, and value, human relation, in a social and professional level, for any chosen career.

The knowledge is transmitted in this course in a theoretical manner, but in the development of the course, there will be activities to help the student apply what is being transmitted. With that in mind, there will be theoretical exercises and the study of cases at an individual level and in groups that will enable the teacher to evaluate the assimilation of the units in a continuous form.

GENERAL OBJECTIVES:

At the end of the-course the students will be able to:

- Demonstrate a better comprehension, self-acceptance, and acceptance of others, in different levels of participation
- Use their higher capacity making it easier to seek productive relations in their personal, social, academic, organizational, and laborious life
- Value the importance of the study of human relations

METHODOLOGY:

- Theoretical expositions by the professor
- Discussions
- Individual exercises

CONTENTS:

- The four temperament types:
 - Sanguine
 - Choleric
 - Melancholic
 - Phlegmatic
- Methods for the appreciation of the different types of temperaments:
 - Estimation based upon the shape of the head and skull
 - Differences in texture of skin and other biological characteristics
 - Estimation through pictures
 - Estimation through handwriting
 - Appreciation of the voice, appearance and posture
- Communication: Concept and nature. Characteristics and its importance in human interaction. Process of communication; its elements. Types of communication:
 - Verbal
 - Direct
 - Spontaneous
 - Intentional
- Communication in the directive process
- Personal attacks. Aid of important people, exaggerated generalization
- Appreciation through job applications
- Appreciation through personal interviews
- Appreciation through questionnaires
- Self-Image. Importance and origin, periods in the development of self-esteem. Factors that influence the development of self-esteem
- Concept of leadership. Concept of leader. Leadership's triangle. General principles of work relations.
- Discussion of problems. Techniques of group dynamism:
 - Internal dynamism of groups



- External dynamism of groups
- Discussions in small groups
- Socio-therapies and psychograms
- Methods of simultaneous dialogue:
 - Symposium
 - Round table discussion with interviewer
 - Exam by commission
 - Dialogue
 - Interviews and conferences
- Brief study of human behavior in a labor level. Adaptation of man to work, work to man, and man to man
- Concept of attitude, components, attitude modification
- Attitude that favor the development of a social environment
- Motivations: Brief story of job motivation. Measurement of motivation. Execution, motivation, and ability.
- Fair treatment for everybody
- Factors that deteriorate human relations; Prejudices, subconscious prejudices
- How to overcome prejudices in work environments
- Motivation. Study of work
- Arbitrary judgments

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



SCIENTIFIC METHODOLOGY
CODE: PRE-407
CREDITS: 3
PREREQUISITE: NONE

DESCRIPTION OF THE COURSE:

The course's curriculum has been defined for students of any career. It focuses its CONTENTS and pedagogic action to familiarize the student with the handling of basic concepts and procedures for research work, pointing up its importance through academic and professional life.

GENERAL OBJECTIVES:

- To analyze theoretical concepts of scientific research
- To Emphasize logical procedures carried out in scientific research
- To apply logical - methodological planning in setting up a research project in accordance with the student's interest field, following general scientific writing criteria
- To develop skills in the handling of the main tools and instruments needed to scientific research
- To follow critical and positive attitudes towards research work

TEACHING METHODOLOGY:

- The educative methodology to be developed during the course shall include, among other techniques:
 - Project related to the career being attended by students
 - Teamwork on activities planned by the educator
 - Use of audio - visual resources
 - Case studies related to students' interest fields
- Students, organized in teams, will develop in parallel conceptual aspects of the Curriculum and their practical application in the fulfillment of the Research Project
- The educator will be in charge of the organization of discussions about the Thematic CONTENTS of the Curriculum, in addition of the advising, supervision and follow up for the Research Project and for the research work achievement

UNIT I: SCIENCES AND THEIR HISTORICAL DEVELOPMENT

FINAL OBJECTIVES:

- To analyze the concept of Science
- To establish historical development of sciences
- To distinguish the different classifications of Sciences

CONTENTS:

- Science. Definitions. Basic characteristics of Sciences. Relation between Science and Society.
- Classification of science according to its object and method of study. Natural Sciences, Social Sciences and Philosophical Sciences
- Classification of Sciences in: Formal, Fact, Human, Exact and Applied.
- Knowledge. Definition. Social origin. Object and subject. Types of knowledge.
- Relation between Science and Technology

SPECIFIC OBJECTIVES:

- To specify the concept of Science, highlighting its relation with Society
- To analyze the different classifications of Sciences
- To evaluate characteristics of different types of knowledge

UNIT II: SCIENTIFIC RESEARCH

FINAL OBJECTIVES: To reconsider scientific research as the process that allows the acquisition of new knowledge.

CONTENTS:

- Research: Definition. Objectives. Basic characteristics. Importance.
- Types of research: pure and applied research. Exploratory, descriptive, explicative and experimental research.
- Scientific research process:
 - Choosing of the topic. Characteristics. Importance and justification
 - Bibliographic revision
 - Delimitation



- Problem exposition
- Theoretical frame: functions and importance
- Concept of hypothesis. Function of the hypothesis in the scientific research. Types of hypothesis. Formulation of hypothesis.
- Variables and indicators.

SPECIFIC OBJECTIVES:

- To ground theoretical base of the research, clarifying its objectives and distinguishing its type
- To analyze the scientific research process and its components
- To analyze the concept of hypothesis determining its function in the scientific research
- To determine the accurate way to formulate hypothesis in a research problem

UNIT III: METHODOLOGICAL DESIGN

FINAL OBJECTIVES:

- To establish the research methodological design and its types
- To analyze the characteristics of different Research Methods and Techniques
- To exercise skills in the handling of the main Research Techniques

CONTENTS:

- Design methodology concept. Importance in the Research work. Types of designs: (Descriptive, comparative, diagnostic, explorative, case studies, documented, experimental and others)
- What is Methodology. The scientific method: functions, characteristics, types of methods: their functions, their types: Descriptive, inductive, deductive, analysis, synthesis and others. Experimental, historical
- Research techniques, definition, functions, criteria, selection, difference between method and technique. Field of application of techniques. Types of techniques. Types: Observation, compilation. Documentary, interviews, questionnaires. Contained analysis; attitudes and opinions measuring scales
- Sampling: Important concepts: Universe, element, strata, samples, representative criteria: types of sampling
- Collection, data processing; need and importance. Different types of analysis, according to the nature of the data: qualitative analysis and quantitative analysis
- Interpretation of results; its relation with the theoretical frame and the global general knowledge

SPECIFIC OBJECTIVES:

- To apply methodological design to the research proposal
- To distinguish between different types of methods
- To study the role of techniques within the Research process, developing those exposed by each team according to their Research Project
- To establish the need and importance of data processing and the different types of analysis within the Scientific Research process
- To emphasize on the results interpretation phase of the research, relating it to the theoretical frame and the global general knowledge

UNIT IV: RESEARCH PROJECT WRITING

FINAL OBJECTIVES: To achieve the Research report according to scientific writing rules

CONTENTS:

Writing of the research report. General considerations, report planning; title page; title, table of contents. Introduction, antecedents, objectives, field of study, problem exposition. Theoretical frame. Hypothesis. Materials and methods. Bibliography. Budget. Appendixes.

SPECIFIC OBJECTIVES:

To write the report according to scientific writing rules

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes



- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



GENETICS
CODE: PRP-408
CREDITS: 3
PREREQUISITE: PRE-204

DESCRIPTION OF THE COURSE:

This one trimester course has been specially designed for students in the Doctor of Pharmacy program. This course will discuss the basic principles of genetics to allow for the future understanding pharmacogenomic properties of drugs.

GENERAL OBJECTIVES:

- To apply the principles of genetics and biological function of molecules, cells, and multicellular organisms
- To apply the concepts transmission and explore the process of cell cycles, mitosis, and meiosis and predict outcomes
- To explore the structure and function of genes, genomes, chromosomes, DNA, RNA, proteins and gene regulation
- To explore biological variation methods such as recombination, mutation, selection, and population genetics

TEACHING METHODOLOGY:

The methodology is aimed towards active teaching, through the participation of students in discussions and oral & written presentations of seminars, so that students develop basic skills in the field of genetics. Students will participate in the execution of experiences in the activities that will take place. The professor's explanations will be illustrated by graphics, slides and electronic micrographs.

CONTENTS:

- Structure and function of genes
- Reproduction: mitosis and meiosis
- Mendelian genetics
- Chromosomes: linkage and mapping
- DNA and RNA structure and function, replication, transcription, and translation
- Genetic mutations
- Genetics of Bacteria; transmission, transduction, plasmids
- Genetics of viruses
- Prokaryotic genes and gene expression
- Eukaryotic genes and genomes
- Gene regulation
- Population genetics: Hardy-Weinberg, mutations, selection

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



BIostatISTICS
CODE: MBS-103
CREDITS: 3
PREREQUISITE: PRE-205

COURSE DESCRIPTION:

This one trimester course is oriented towards preparing and capacitating students in knowing and handling of concepts and basic instruments used in the field of applied Biostatistics, in addition to creating the necessary foundation for these to be later applied in the field of epidemiology.

GENERAL OBJECTIVES:

- To familiarize the student with the most important concepts of the methodology used in Biostatistics
- To give the student the necessary tools which will enable him to collect, present and analyze vital data
- To prepare the student so that he will be able to understand, value and apply statistical methods in the field of health

TEACHING METHODOLOGY:

- Lectures
- Practical exercises

CONTENTS:

- Introduction and History
- Types of Data
- Univariate Summaries
- Deviance, Variance, Standard Error, and Standard Deviation
- Comparing two variables
 - Introduction
 - Bivariate Comparisons
 - Hypothesis Testing and Statistical Significance
 - Sample Selection
 - Collecting the Information
 - Criticism of the Information
 - Tabulating the data
 - Preparation of Charts and Graphs
 - Strategy for Determining Statistical Significance
 - The Chi Square Test
 - Beta Error and Power
 - Other Tests for Statistical Significance
 - A Cautionary Note About Clinical Versus Statistical Significance
 - P-Value
 - Sensitivity
 - Specificity
 - Positive Predictive Value
 - Negative Predictive Value
 - Accuracy
 - Precision
 - Relative Risk
 - Absolute Risk
 - Incidence vs. Prevalence
- CORRELATION, REGRESSION, AND INTRODUCTION TO MULTIVARIABLE ANALYSIS
 - Introduction
 - Correlation and Regression
 - Introduction to Multivariable Analysis
 - Practical Applications



EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHYSICAL CHEMISTRY I
CODE: PHR-101
CREDITS: 4
PREREQUISITE: PRE-402

DESCRIPTION OF THE COURSE:

This is the first part of a two trimester course which will review the concepts of general and physical chemistry and its application to the structure and physicochemical properties of drugs. Part one of the course focuses on equilibria and thermodynamic principles. Lectures will be supplemented with a laboratory course.

GENERAL OBJECTIVES:

- Explore theories and rational behind biological and physical processes applicable to pharmaceutical drugs
- Perform calculations predicting outcomes of drugs in humans
- Evaluate and apply data to pharmaceutical practice

CONTENTS:

- Physical chemistry in pharmaceutical practice
- Equilibrium
 - Gas properties
 - Pressure and temperature
 - Van der Walls equation
- Thermodynamics
 - Open and closed systems
 - Work, heat and energy
 - First law of thermodynamics
 - Enthalpy
 - Second law of thermodynamics
 - Entropy
 - Gibbs energy
 - Properties
 - Variation
 - Spontaneity
 - Chemical equilibrium
 - Combining first and second laws
- Phase diagrams
 - Stability
 - Boundaries
 - Transitions and thermodynamic considerations
- Simple mixtures
 - Solutions
 - Ideal
 - Ideal-dilute
 - Colligative properties
 - Raoult's Law
 - Binary systems
- Intermolecular interactions
 - Polarization
 - Properties of pure compounds
 - Phase changes
 - Properties of compounds in solution
 - Vapor pressure lowering
 - Boiling point elevation
 - Freezing point depression
 - Osmotic pressure
 - Tonicity
 - Gases
 - Surface tension
 - Surface films
 - Condensation



- Chemical equilibrium response to conditions
 - Pressure changes
 - Temperature changes
- Electrochemistry
 - Electrodes
 - Cell potential
 - Electrode potential

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



MEDICINAL CHEMISTRY
CODE: PHR-102
CREDITS: 4
PREREQUISITE: PRE-402

DESCRIPTION OF THE COURSE:

Medicinal chemistry focuses on the development of pharmaceutical compounds and the interactions on a molecular level. This introductory course will explore the concepts of assembly, structure, and interactions of macromolecules with an additional focus on drug metabolism. Basic knowledge and understanding of organic chemistry, biology and biochemistry will be applied. Lectures will be supplemented with a laboratory course.

CONTENTS:

- General principles of medicinal chemistry
- History of natural drug discovery
- Medicinal chemistry notation
- Homolytic and heterolytic bond cleavage
- Reaction mechanisms
- Arrow pushing
- Small molecules
- Macromolecules
- Drug design and pharmacological activity
 - Molecular structure relationship to drug activity
 - Drug receptors
 - Physiochemical properties of drugs
 - Acid-base
 - pK_a
 - Degree of ionization
 - Water solubility
 - Stereochemistry effects
 - Drug action
 - Biological activity
 - Diastereomers
 - Conformational isomerism
 - Metabolism
 - Hepatic metabolic pathways
 - ADME (absorption, distribution, metabolism, elimination) properties of drugs
- Drug receptors
 - Chemical bonding
 - Conformation
 - Dose-response relationship
 - Biological response
 - Signal transduction
 - Transmembrane ion channels
 - Transmembrane G-protein-coupled receptors
 - Enzyme-coupled receptors
 - Catalytic receptors
 - Intracellular receptors
 - Receptor properties

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of the lab work / classwork
- Quizzes sessions

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



BIOPHARMACEUTICS
CODE: PHR-103
CREDITS: 3
PREREQUISITE: PRP-408

DESCRIPTION OF THE COURSE:

This introductory course will discuss the various physiological processes that drugs undergo in the human system. Topics of discussion include drug absorption, transport, distribution, metabolism, and excretion, which will provide an insight into therapeutically managing patients.

CONTENTS:

- Drug development
 - Safety
 - Efficacy
 - Investigational drugs
 - Drug patents
 - Clinical testing and ethics
- New drug development
 - Study protocols
 - Phase I
 - Phase II
 - Phase III
 - Phase IV
- New drug applications (NDA)
 - Supplemental NDA (sNDA)
- Abbreviated new drug applications (ANDA)
- U.S. Food and Drug Administration (FDA) overview
- Clinical applications of radioisotopes
 - Particles
 - Nomenclature
 - Nuclear reactions
 - Fission and fusion
 - Units of radioactivity
 - Radiation
 - Alpha
 - Beta
 - Gamma
 - Radioactive decay
 - Radiation and chemical effects
 - Clinical instruments
 - Positron emission tomography
 - Gamma camera-scintillation camera
 - Single photon emission tomography
 - Brain scans
 - Blood and heart scans
 - Bone scans
 - Lung scans
 - Thyroid scans
 - Boron therapy
 - Radiation Dosimetry
 - Radiation absorbed dose
 - Radiosensitive and radioresistant tumors
 - Side effects
- Drug action kinetics
 - Potency, efficacy, therapeutic index, safety margin
 - Dose optimization models
 - Fixed effect
 - Linear
 - Log-linear



- Emax
- Sigmoidal emax
- Hysteresis loops
- Variability factors
 - Metabolism
 - Genetics
 - Environment
 - Drug-drug interactions
- Drug transport
 - Biological membrane structure and composition
 - Models
 - Davson-Danielli-1935
 - Singer-Nicolson-1972
 - Intrinsic and extrinsic proteins
 - Cholesterol
 - Glycolipids
 - Oligosaccharides
 - Fusogenic peptides
 - Mechanisms of transport
 - Passive diffusion
 - Facilitated diffusion
 - Active transport
 - Vesicular transport
 - Pinocytosis
 - Phagocytosis
 - Exocytosis
 - Bulk transport
 - Pore filtration
 - Ion-pair formation
 - Intestinal transporters
 - Apical transporters
 - ATP-binding cassette proteins
 - P-glycoprotein transporters
 - MRP2 transporter
 - BCRP transporter

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of classwork
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score



SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



INTRODUCTION TO PHARMACY
CODE: PHR-104
CREDITS: 3
PREREQUISITE: PRP-4XX

DESCRIPTION OF THE COURSE:

Introduction to pharmacy will describe the growing field of pharmacy and the ongoing and future trends of the profession. Guest lecturers from different pharmacy backgrounds will provide students with additional information. Students will be required to gain 40 hours of experience with non-pharmacy healthcare professionals to expand their knowledge of the healthcare system.

GENERAL OBJECTIVES:

- To explore the field of pharmacy and introduce students to pharmaceutical practice
- To expose students to the important current issues surrounding pharmacy practice
- To explore the future of pharmacy

CONTENTS:

- History of pharmacy
- Degree offerings and educational pathways
- Medication use process
- Medication therapy management
- Pharmacy megatrends
- Global pharmacy issues
- Regional pharmacy issues
- Pharmacy professionalism
- Pharmacy ethics
- Pharmacy's role in healthcare
- Providing patient care
- Pharmacy practice settings
 - Community pharmacy
 - Hospital pharmacy
 - Nuclear pharmacy
 - Integrated practice
 - Consultant pharmacy
 - Managed care pharmacy
 - Industry
 - Research
 - Infusion pharmacy
- Pharmacy regulations and protecting the public
- Patient confidentiality
- Communication skills and development
- Current and future pharmacy initiatives
- Career opportunities
- Top 200 brand and generic drugs

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Seminars
- Quizzes sessions

Represents: 20% of the final score



SCORE 2

Evaluates: Research papers / projects

Represents: 40% of the final score

SCORE 3

Evaluates: student's performance in the final practical / oral examination

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



INTRODUCTION TO ANATOMY AND PHYSIOLOGY

CODE: PRE-404

CREDITS: 3

PREREQUISITE: PRE-204

GENERAL OBJECTIVES:

- Familiarize the students with the basic concept of Anatomy and Physiology
- Create a base in order to achieve better performance in further subjects of the program

METHODOLOGY:

Lectures supported with back slides, anatomic material and transparent slides

CONTENTS:

I TOPIC: anatomy definition. anatomic language. cell concept. organs, tissues, systems, apparatus.

II TOPIC: human body organization. anatomic physiology concept. body structure generalities: cells, organs, and systems. cellular structure, cellular physiology, cellular reproduction.

III TOPIC: general concept of skeleton. bone configuration. types of ossification. bone nerves and vessels. articulations in general.

IV TOPIC: vertebral column. cervical, dorsal, and lumbar vertebra. common properties and characteristics of the vertebra. sacrum. coccyx.

V TOPIC: skull bones in general. vault. skull base cavity. internal and external configuration of the skull, general configuration of the face. eye socket. oral cavity. nasal fossa.

VI TOPIC: nervous system. brain and meninges. spinal cord. conductive system. rachidian nerves. autonomic nervous system

VII TOPIC: innervation system and muscles of the head. muscle contraction. special senses: vision, audition, smell, taste and touch. cranial nerves.

VIII TOPIC: thorax, ribs. sternum. upper/limbs. clavicle. scapula. ulna. radius. humerus. bones of the hand.

IX TOPIC: thorax and upper limbs muscles. brachial plexus.

X TOPIC: pelvis. iliac bones. general configuration of the pelvis. femur. tibia. fibula. bones of the feet.

X TOPIC: abdominal muscles. pelvis. waist and lower limbs. lumbosacral plexus.

XII TOPIC: blood. blood cell components. coagulation. blood types. immunity concept. lymph.

XIII TOPIC: heart. cardiac cycles. heart beats. arterial and venous vessel circulatory dynamic. circulatory system physiology.

XIV TOPIC: respiratory apparatus: nasal fossa, pharynx, larynx, trachea, lungs, pleura

XV TOPIC: respiratory apparatus physiology: nose, paranasal sinus, larynx, trachea, bronchus, lungs, respiration control

XVI TOPIC: digestive apparatus, salivary glands, mouth, . esophagus, stomach, bowels, pancreas, liver, spleen, omentum, ligaments

XVII TOPIC: digestive apparatus: physiology

XVIII TOPIC: urinary apparatus. kidneys. ureter. bladder. urethra.



XIX TOPIC: water and electrolytes. body compartments. blood pressure. acid-base balance.

XX TOPIC: feminine genital apparatus. uterus. ovaries. vagina. menstrual cycle. masculine genital apparatus. testicles. deferent duct. scrotum. penis.

XXI TOPIC: endocrine system. reproductive apparatus. internal secretion glands. exocrine glands.

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



BIOCHEMISTRY
CODE: MBS-102
CREDITS: 5
PREREQUISITE: PRE-402

COURSE DESCRIPTION:

This subject includes the study of the macromolecules and their precursors forming part of the living cells. It studies the structure and function of carbohydrates, lipids, protein, nitrogen compounds; the mechanism of action of enzymes as biocatalysts of the intermediary metabolism.

We analyze energy metabolism of nutrients and the different metabolic pathways by which energy-matter exchange takes place between living cells and its environment. Finally, biochemical basis and genetical aspects of the life are discussed; including metabolic disturbances and inherited diseases.

GENERAL OBJECTIVES:

- To describe the structure of macromolecules and their precursors involved in the living cells
- To describe the nature of enzymes and the process of enzyme catalysis as the basis of intermediary metabolism
- To explain the processes by which the cell obtains energy from oxidation of nutrients analyzing the relationship between the major anabolic and catabolic pathways
- To interpret the role of carbohydrate, lipid, protein and nucleic acid metabolism in normal and selected common diseases states
- To describe the process of genetic information transference and its regulation

CONTENTS:

UNIT I: STRUCTURE AND FUNCTION OF PROTEINS

TOPIC 1: AMINO ACIDS

- Concept
- Classification
- Structure nomenclature
- Properties
- Titration
- Pka and isoelectric ph

TOPIC 2: PEPTIDES AND PROTEINS

- Concept
- Levels of organization of protein and involve linkages
- Nomenclature of Peptides
- Methods to determine the amino acid composition of a polypeptide
- Hydrolysis of polypeptide
 - Different Methods
 - Protein denaturation
- Globular Protein:
 - Globular hemoproteins
 - Myoglobin and hemoglobin
 - Binding of Oxygen
 - Allosteric
 - Effectors and Saturation- Dissociation plot of hemoglobin
 - Sickle-cell anemia
- Fibrous Protein:
 - Structure and function of collagen
 - Biosynthesis
 - Structure and function of elastin

UNIT II ENZYMES

TOPIC 1: GENERAL FEATURE

- Concept
- Classification
- Structure
- Nomenclature



- Old name
- Recommended and systematic names
- Properties of enzymes
- Mechanism of enzyme action
 - Activation energy
 - Theories about catalytic site
- Enzyme specificity
- Factors affecting the velocity of enzyme reactions

TOPIC 2: ENZYME KINETICS

- Michaelis-Menten Equation
- Km-Constant
- Maximal velocity (Vmax)
- Order of reaction
- Sigmoidal Kinetics
- Lineweaver-Burke plot

TOPIC 3: ENZYME INHIBITION

- Competitive and noncompetitive inhibitors
- Effect on Lineweaver-burk plot
- Examples of Drugs acting as enzyme inhibitors

TOPIC 4: ENZYME REGULATION

- Mechanisms of enzyme-regulation
 - Allosteric site and enzyme modulators
- Covalent modification
 - Induction and repression of enzyme synthesis
- Enzyme cofactors
 - Metal ions and coenzyme

TOPIC 5: ENZYME IN CLINICAL DIAGNOSIS

- Isoenzymes
- Isoenzymes in diagnosis of myocardial infarction
- Enzyme in diagnosis of liver, pancreatic and other diseases

UNIT III BIOLOGICAL OXIDATIONS

TOPIC 1: THERMODYNAMIC LAWS. FREE ENERGY

- Enthalpy and Entropy
- Change in free energy as a criterion of feasibility
 - Standard free energy change and the equilibrium constant
- Coupled reaction systems

TOPIC 2: ENERGY-RICH AND ENERGY-POOR COMPOUNDS

- Classification criteria
 - ATP as an energy carrier
 - ATP and energy exchange
 - Lipmann is law
- High-energy bond and group activation

TOPIC 3: RESPIRATORY CHAIN AND OXIDATIVE PHOSPHORYLATION

- Concept of mitochondrial respiratory chain
- Membrane transport Systems
- Structure and function of mitochondrion
- Electron transport chain
 - Concept Cell location
 - Organization and reactions Electron transport inhibitors
- Oxidative phosphorylation Concept
 - Control Chemiosmotic theory
 - Respiration-oxidative phosphorylation coupling
- Inhibitors and uncouplers of oxidative phosphorylation
- Clinical Applications
- Substrate level phosphorylation
 - Concept Exemplars



TOPIC 4: BASIC CONCEPTS OF METABOLISM

- Metabolism
- Phases of Metabolism
 - Anabolism and catabolism
 - Amphibolism
 - Anabolism and catabolism relationship
- Metabolic Sequences
 - Pathways and cycles Metabolic map Metabolism regulation
- Transduction of chemical signals
 - Intracellular and cell-surface Receptors
 - Intracellular messenger systems
 - Adenyl cyclase system
 - Calcium / phosphatidylenositol system

TOPIC 5: CITRIC ACID CYCLE (KREBS CYCLES)

- Concepts
- Celliocation
- Anaplerotic reactions
- Origin of acetyl-CoA from pyruvate
- Reactions of the citric acid cycle
- Energy yielding
- Regulation
- Vitamins required in Krebs cycle
- Relationship of Krebs cycle with other metabolic pathways

UNIT IV: CARBOHYDRATE METABOLISM

TOPIC 1: STRUCTURE AND FUNCTION OF CARBOHYDRATES

- Biological importance
- Classification and nomenclature
- Structures
 - Fisher
 - Hemiacetalic and cyclic
- Carbohydrate derivatives
- Digestion and absorption of carbohydrate
- Lactase deficiency

TOPIC2: GLYCOLYSIS

- Concept
- Types
- Cell location
- Reactions
- Energy yielding
- Importance of glycolytic pathway in red blood cell and muscle
- Alternate fates of Pyruvate
- Hormonal regulation of glycolysis
 - Role of insulin and glucagon in the homeostasis of glycemia

TOPIC 3: GLYCOGEN METABOLISM

- Overview
- Structure and function of glycogen
- Glycogenesis
 - Reactions
 - Regulation
- Glycogenolysis
 - Reactions and Regulation
- Glycogen storage diseases

TOPIC 4: GLUCONEOGENESIS

- Concept
- Gluconeogenic pathways
- Gluconeogenic tissues



- Regulation
 - Hormones fed-fasting cycle

TOPIC 5: HEXOSEMONOPHOSPHATE PATHWAY

- Concept
- Biological importance
- Oxidative and nonoxidative reactions
- Regulations
- Favism

TOPIC 6: METABOLISM OF OTHER SUGARS

- Fructose metabolism
- Phosphorylation Reactions
- Hereditary fructose intolerance
- Galactose metabolism
- Phosphorylation
 - Reactions
 - Galactosemia
- Lactose Metabolism
 - Synthesis and hormonal control

TOPIC 7: GLYCOSAMINOGLYCANS

- Structure and function
- Protoglycans
- Synthesis of glycosaminoglycans
- Breakdown of glycosaminoglycans
- Mucopolysaccharidoses

TOPIC 8: GLYCOPROTEINS

- Structure and function
- Synthesis and catabolism of glycoproteins

UNIT V: LIPID METABOLISM

TOPIC 1: STRUCTURE AND FUNCTION OF DIETARY LIPIDS

- Fatty acids
 - Unsaturated and saturated fatty acids
 - Essential fatty acids
 - Medium chain and long chain fatty acids
- Acylglycerols
 - Structure
 - Nomenclature
- Phospholipids
 - Structure and function
- Cholesterol
 - Structure and function

TOPIC 2: DIGESTION OF DIETARY LIPIDS

- Acylglycerols
- Phospholipids and cholesterol
- Enzyme digestion in small intestine
- Bile acids and emulsification
- Intestinal absorption and transport of lipid
- Resynthesis of lipid in the enterocyte
- Secretion of chylomicrons

TOPIC 3: METABOLISM OF FATTY ACIDS

- Fate of free fatty acid
- Beta oxidation
- Concept
- Cellocation
- Actuation of fatty acids
- Carnitive fatty acids
- Energy yielding of beta oxidation



- Synthesis of fatty acid
- De novo synthesis
- Fatty acid synthase complex
- Regulation
- Elongation and desaturation of fatty acids
- Prostaglandins and related compounds

TOPIC 4: METABOLISM OF TRIACYLGLYCEROLS

- Biosynthesis
- Catabolism
- Storage of triacylglycerol
- Mobilizations of stored fats
- Hormone regulation
- Fatty liver

TOPIC 5: KETONE BODIES METABOLISM

- Biosynthesis
- Degradation
- Diabetic Ketoacidosis
 - Pathophysiology and management

TOPIC 6: CHOLESTEROL METABOLISM

- Biosynthesis
- Regulations
- Degradation
- Bile acids
- Bile salts synthesis
- Enterohepatic circulation

TOPIC 7: PHOSPHOLIPID METABOLISM

- Synthesis of Phospholipids
- Degradation of phospholipids
- Glycosphingolipids
 - Structure
 - Synthesis and degradation
- Sphingolipidoses

TOPIC 8: PLASMA LIPOPROTEINS

- Chemical composition
- Metabolism of chylomicrons
- Metabolism of very low density lipoproteins
- Metabolism of low density lipoproteins
- Metabolism of high density lipoproteins
- Hyperlipoproteinemias

UNIT VI METABOLISM OF NITROGEN COMPOUNDS

TOPIC 1: DIGESTION

- Role of diet protein
- Proteolytic Enzymes
- Intestinal absorption of peptides and amino acids
- Amino acid pool and protein turnover

TOPIC 2: METABOLISM OF AMINO ACIDS

- General reactions of the amino acids
 - Transamination
 - Oxidative deamination
 - Trans-deamination
 - Decarboxylation
- Glucogenic and ketogenic amino acids
- Ammonia
 - Metabolic origin
 - Elimination
- Urea cycle



- Cell location
- Reactions
- Regulation
- Hyperammonemia
- Metabolism of tryptophan and phenylalanine
- Phenylketonuria (PKU)
 - Metabolic defect
 - Diagnosis
 - Clinical feature
 - Treatment

TOPIC 3: METABOLISM OF PORPHYRINS

- Synthesis and degradation
- Regulation of ala-synthetase
- Porphyrins and Jaundice

UNIT VII: BIOCHEMICAL GENETICS

TOPIC 1: STRUCTURE AND FUNCTION

- Purine and pyrimidine bases
- Nucleosides and nucleopeptides

TOPIC 2: METABOLISM OF NUCLEOTIDES

- Pyrimidine nucleotides
 - Biosynthesis and degradation
- Purine nucleotides
 - Biosynthesis and degradation
- Conversion of Ribonucleotides to deoxyribonucleotides
- Gout and lesch nyhan syndrome. Uric Acid Metabolism.

TOPIC 3: DNA REPLICATION

- Structure of DNA
- Watson and Crick model
- DNA synthesis in prokaryotic cells
- Steps and enzymes
- Organization of DNA in Eukaryotic cells
- DNA repair

TOPIC 4: TRANSCRIPTION

- RNA structure
- Types of RNA
- Transcription in prokaryotic cells Enzymes and steps
- Transcription in Eukaryotic cells
- Post-transcriptional modification of RNA

TOPIC 5: TRANSLATION

- The genetic code
 - Special codons
 - Characteristics of the gene code
- Structure of ribosomes
- Steps and enzymes involved in protein synthesis
- Post-translational modification

TOPIC 6: MOLECULAR BASIS OF INHERITED DISEASE

- Concept of genetic diseases
- Cleavage of DNA
- DNA cloning
- Polymerase chain reaction
- Prenatal diagnosis of inherited diseases Methods
- Diagnosis of sickle cell anemia and phenylketonuria



EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Execution of the lab work / classwork
- Team expositions on given themes
- Research papers / projects
- Seminars
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHYSICAL CHEMISTRY II
CODE: PHR-201
CREDITS: 4
PREREQUISITE: PHR-101

DESCRIPTION OF THE COURSE:

This is the second part of the physical chemistry courses which will further discuss molecular structure, chemical reactions, and solubility. Lectures will be supplemented with a laboratory course.

CONTENTS:

- Molecular structure overview
 - Valence bond theory
 - Molecular orbital theory
 - Symmetry
 - Magnetic resonance
- Biological macromolecules
 - Proteins
 - Nucleic acids
- Colloids
- Micelles
- Beer-Lambert Law
- Concentration units
- Dilution
- Chemical reactions in pharmaceutical practice
 - Partition coefficient
 - Drug solubility and action
- Complexation and drug binding reactions
- Vapor pressure
- Solubility and partitioning
 - Drug solubility principles
 - Common ion effect
- Acid/Base reactions and equilibria
 - pH and buffers
 - drug solubility, partitioning, and absorption
 - acid/base problems
- Reaction kinetics
 - Rate laws and rate constants
 - Reaction order
 - Zero order processes
 - First order processes
 - Pseudo-order processes
 - Integrated rate laws
 - Half-lives
 - Steady-state approximation
 - Rate-determining step
 - Temperature and pH effects
- Drug degradation

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of the lab work / classwork
- Quizzes sessions

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACEUTICAL BIOCHEMISTRY
CODE: PHR-202
CREDITS: 3
PREREQUISITE: MBS-102

DESCRIPTION OF THE COURSE:

This course will focus on the molecular chemistry and reactions related to pharmaceutical drug targets. This course will also provide an insight into pharmaceutical biotechnology.

CONTENTS:

- Cholesterol metabolism overview
- Plasma lipoproteins
- Amino acids and nitrogen sources
- Ammonia metabolism
- Nucleic acids overview
 - Structure
 - Biosynthesis
- DNA repair
- Transcription and regulation
 - Prokaryotes
 - Eukaryotes
- Postranscriptional modifications
- Protein synthesis overview
 - Prokaryotes
 - Eukaryotes
- Protein modifications
- Protein folding and degradation
- Basic drug-receptor interaction concepts
 - Ligand
 - Agonist
 - Partial agonist
 - Inverse agonist
 - Antagonist
 - Receptor theories
- Enzyme inhibition
 - Reversible
 - Irreversible
- Nucleic acid drug binding
 - Antimalarials
 - Anti-cancer
 - Antiviral
- Biotechnology
- Recombinant DNA

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Team expositions on given themes
- Quizzes sessions

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



ANATOMY AND PHYSIOLOGY
CODE: PHR-203
CREDITS: 6
PREREQUISITE: PRE-404

DESCRIPTION OF THE COURSE:

This course is specifically designed for students in the pharmacy program to further explore the physiological systems relevant to understanding drug targets and metabolism.

GENERAL OBJECTIVES:

- Develop an in-depth knowledge of cellular physiology and signaling
- Develop a thorough understanding of the neural, cardiovascular, and endocrine systems

CONTENTS:

- Homeostasis
- Organelles
- Plasma membrane, junctions, osmolarity, and diffusion
- Facilitated diffusion
- Active transport
- Membrane potential and ion channels
- Action potentials
- Nerve conduction
- Synaptic transmission
- Neurotransmitters and receptors
- Receptors and effectors
- Signal transduction
- Gastrointestinal system
- Glial cells, cerebrospinal fluid and blood-brain barrier
- Central nervous system
 - Sensory cortex
 - Motor cortex
 - Cerebral cortex
- Limbic system
 - Thalamus
 - Hypothalamus
- Spinal chord
- Proprioception
- Nociception
- Vision and audition
- Vestibular system
- Olfactory system
- Autonomic nervous system
- Somatic nervous system
- Muscle physiology
- Cardiac physiology
- Cardiac electrophysiology
- Blood vessels
- Blood pressure



EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of the lab work / classwork
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACOLOGY
CODE: PHR-204
CREDITS: 4
PREREQUISITE: PHR-102

DESCRIPTION OF THE COURSE:

This basic course is designed to provide an understanding of the principles of pharmacology; principles of drug action and therapeutic drug effects. Lectures will be supplemented with a laboratory course.

CONTENTS:

- Drug affinity
- Intrinsic activity
- Feedback regulation
- Drug-receptor interactions review
 - Agonist
 - Partial agonists
 - Antagonists
- Drug absorption
- Drug distribution
- Drug metabolism
- Drug excretion
- Drug clearance
- Bioavailability
- Drug efficacy
- Dose-response curves
- Half-life
- 50% effective dose
- Maximal effect
- Therapeutic dose
- Toxic dose
- Lethal dose
- Drug antagonism
- Population specific pharmacology
 - Special population characteristics
 - Pediatric
 - Geriatric
- Peripheral nervous system acting drugs
- Autonomic nervous system acting drugs
 - Adrenergic agents
 - Cholinergic agents
- Somatic nervous system acting drugs
 - Neuromuscular agents
- Central nervous system acting drugs
 - Stimulants
 - Depressants
- Pregnancy implications on pharmaceutical drug products

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of the lab work / classwork
- Quizzes sessions

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 40% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACEUTICS
CODE: PHR-205
CREDITS: 3
PREREQUISITE: PHR-1XX

DESCRIPTION OF THE COURSE:

This course is aimed at exploring the functionality and physical and chemical properties of drugs, pharmaceutical excipients, and dosage forms. This course will also provide the necessary material to successfully pass Pharmaceutical Compounding (PHR-305).

GENERAL OBJECTIVES:

- To understand principles and factors controlling drug stability and bioavailability
- To understand and be able to recognize various mechanisms of drug release in different dosage forms
- To understand the numerous stages in drug development and clinical testing
- To become familiar with the patent and regulatory processes regarding drug development
- To learn the principles regarding the development of drug delivery systems
- To recognize and understand the function of numerous ingredients in pharmaceutical products

CONTENTS:

- Routes of drug administration
- Dosage forms
 - Therapeutic considerations of drug design
- Bioavailability and Bioequivalence
- Drug patents
- Powders and granules
 - Particle size reduction
 - Comminution
 - Packaging
 - Effervescent products
- Capsules
 - Materials
 - Gelatins, plasticizers, colorants, preservatives
 - Hard gelatin capsules
 - Sealing and self-locking closures
 - Soft gelatin capsules
 - Capsule preparation
 - Formulation and filling operations
 - Special capsules
 - Packaging and storing
- Tablets
 - Classes and types of tablets
 - Drug release mechanisms
 - Excipients
 - Fillers, binders, disintegrants, glidants, lubricants
 - Manufacturing of tablets
 - Punch tablet press
 - Wet granulation
 - Direct compression
 - Recompression
 - Tablet evaluation
 - Testing; dissolution and disintegration
 - Hardness and friability
 - Drug content and uniformity
 - Special tablets
 - Layered tablets
 - Buccal and sublingual tablets
 - Lozenges
 - Chewable tablets
 - Effervescent tablets



- Solution theory
 - Solutions
 - Solvents
 - Solute
 - Mole fraction
 - Solubility
 - Influencing factors; salt forms, pH, intermolecular hydrogen bonding, crystal lattice energy, ionic strength, polymorphism
 - Dissolution rate and energetics
 - Solvation
 - Cosolvents
- Liquids
 - Alcohols in water
 - Volatile oils in water
 - Water USP
 - Aromatic water
 - Syrups
 - Miscellaneous liquids
 - Isotonic solutions
 - Nonaqueous solutions
 - Alcohols and ethers
 - Spirits and elixirs
 - Tinctures and extracts
 - Extraction process
- Polyphasic systems
 - Colloids
 - Lyophilic and lyophobic colloids
 - Association colloids
 - Preparation and properties of colloids
 - Zeta potential and colloid stability
 - Protective colloids
 - Suspensions
 - Sedimentation
 - Suspending agents
 - Stabilizing suspensions
 - Colloid theory and suspensions
 - Crystal growth and caking
 - Emulsions
 - Creams
 - Gels
 - Syneresis and thixotropy
 - Inorganic and organic gels
- Surface tension and surfactants
 - Definition
 - Modification of surface tension by surfactants
 - Micelle formation
 - Solubilization, detergents, and emulsification
 - Surfactant classification
 - Hydrophilic-Lipophilic Balance
 - Surfactant uses
- Suppository and colonic delivery systems
 - Types of suppositories
 - Advantages and disadvantages
 - Local and systemic functions
 - Ingredients
 - Cocoa butter
 - Lipoidal bases and water soluble bases
- Emulsions
 - Internal and external preparations



- Emulsifying agents
 - HLB and emulsification
 - Preservation
- Topical dosage forms
 - Skin structure and function
 - Enhancing skin penetration
 - Percutaneous absorption of drugs
 - Classifications
 - Topical components
 - Formulation and manufacture
 - Ointments
 - Preparation
 - Hydrous and anhydrous bases
 - Water washable bases
 - Creams
 - Water washable and vanishing
 - Emulsifiers
 - Preparation and preservatives
 - Pastes, gels, and lotions
- Pulmonary and nasal delivery systems
 - Inhalation therapy
 - Influencing factors
 - Drug targeting
- Meter-dose Inhalers
 - Aerosol technology and principles of development
 - Devices
- Dry-powder inhalation
 - Classification
- Buccal delivery systems
- Pharmaceutical compounding
 - Methodology
 - Mixing order
 - Component properties
 - Compounding various dosage forms
- Modified-release dosage forms
 - Terminology
 - Influencing biological factors
 - Half-life
 - Absorption
 - Metabolism
 - Safety
 - Physiochemical factors
 - Dose, pka, stability, solubility, partition coefficients
 - Reservoir and matrix systems
 - Biodegradable delivery systems
 - Osmotically controlled systems
 - Ion exchange systems
 - Transdermal delivery systems
 - Nasal drug delivery systems
 - Ophthalmic delivery systems
 - Intravaginal and intrauterine delivery systems
 - Targeted drug delivery systems
- Parenteral preparations
 - Sterility
 - Techniques and methods
 - Classifications
 - USP Standards
 - Aseptic technique
 - Small and large volume formulations



- Radiopharmaceuticals
 - radioisotopes

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 40% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



INTRODUCTION TO PATHOLOGY
CODE: PHR-206
CREDITS: 2
PREREQUISITE: PRE-404

DESCRIPTION OF THE COURSE:

This course is specifically designed for pharmacy students. Introduction to pathology course provides a basis for understanding pathological processes underlying targets of pharmaceutical drug therapy.

CONTENTS:

- Adaptation
- Cell injury
- Process of necrosis and apoptosis
- Hemostatic principles
- Blood cell and bone marrow disorders
- Acute inflammation
- Chronic inflammation
- Inflammatory mediators and pathways
- Inflammatory mechanisms and tissue injury
- Tissue healing
- Immune system function
 - Histocompatibility complex
 - Cytokines
 - Autoimmunity
 - Immunodeficiency
 - Transplant rejection
- Neoplasia mechanisms and classification
- Molecular pathology
- Infectious disease and prevention
 - Bacteria
 - Virus
 - Fungi
 - Parasites
- Cardiovascular disease and prevention
- Metabolic and endocrine disease and prevention
- Pulmonary disease and prevention
- Nutritional disease and prevention
- Environmental disease and prevention
- Antibiotic resistance

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 40% of the final score



SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACOTHERAPY I
CODE: PHR-301
CREDITS: 10
PREREQUISITE: PHR-2XX

DESCRIPTION OF THE COURSE:

This is part I of the Pharmacotherapy series of courses which will provide an in-depth knowledge base for future pharmacists to provide appropriate patient care. In order to successfully complete this series, students must be able to understand the pharmacology, physiology, and pathophysiology of the underlying condition and apply the appropriate pharmacotherapeutic principles using critical thinking skills. Most pharmacotherapy courses will be supplemented with laboratory case problems and presentations. Pharmacotherapy I will focus on physiological systems involved in fluid balance disorders, inflammatory disorders, cardiovascular disorders, and hematologic disorders.

CONTENTS:

- Fluid and electrolytes overview
- Acid/Base equilibria
- Cholinergic and anticholinergic systems
- Adrenergic mechanisms
- Inflammatory disorders
 - COX pathway
 - Steroidal drugs
 - Non-steroidal anti-inflammatory drugs (NSAIDs)
 - Nonselective COX and selective COX-2 inhibitors
 - Acetaminophen
 - Salicylates
 - Indomethacin, etodolac, and sulindac
 - Fenamates
 - Propionic acid derivatives
 - Enolin Acids
 - Nabumetone
 - Diaryl substituted furanones and pyrazoles
 - Miscellaneous agents
- Systemic Lupus Erythematosus overview and treatment considerations
- Arthropathic diseases
 - Rheumatoid arthritis overview and treatment
 - Osteoarthritis overview and treatment
 - Hyperuricemia and gout
 - Colchicine
 - Allopurinol
 - Uricosuric agents
 - Anti-inflammatory agents
- Renal failure
 - Renin angiotensin aldosterone system review
 - Acute versus chronic
 - Dialysis
- Antihypertensives
 - Diuretics
 - Sympatholytic agents
 - Alpha₂-agonists
 - Beta-blockers
 - Alpha₁-blockers
 - ACE Inhibitors and ARBs
 - Calcium channel blockers
 - Vasodilators
- Management of hypertension
 - Risk factors
 - Drug therapy algorithm
 - Lifestyle modifications



- Arrhythmias
 - Pathophysiology
 - Cardiac electrophysiology
 - Antiarrhythmic drugs
 - Various drug targets
 - Na⁺ channel blockers
 - Ca²⁺ channel blockers
 - Beta-blockers
 - Adenosine
 - Amiodarone
 - Bretylium
 - Digitalis glycosides
 - Disopyramide
 - Dofetilide
 - Flecainide
 - Ibutilide
 - Lidocaine
 - Magnesium
 - Mexiletine and tocainide
 - Moricizine
 - Phenytoin
 - Procainamide
 - Propafenone
 - Quinidine
 - Sotalol
 - Management
- Blood clotting
 - Clotting pathway review
 - Anticoagulants
 - Antiplatelet agents
 - Thrombolytics
- Myocardial Infarction (MI) and Acute Coronary Syndrome (ACS)
 - Vasodilators
 - Anatomy overview
 - Pharmacology
 - Medicinal chemistry
 - Angina
 - MI management
 - ACS management
- Congestive Heart Failure (CHF)
 - Diuretics
 - Aldosterone antagonists
 - Vasodilators
 - ACE Inhibitors and ARBs
 - Hydralazine
 - Beta-blockers
 - Cardiac glycosides
 - Digoxin
 - Management
 - Anticoagulation and antiplatelet therapy
 - Antiarrhythmic therapy
 - Parenteral agents
 - Sodium nitroprusside
 - Dobutamine
 - Dopamine
 - Nitroglycerin
 - Phosphodiesterase inhibitors
- Lipid disorders
 - Lipid metabolism and synthesis



- Atherosclerosis
- Hyperlipidemia
 - Risk factors
 - Lifestyle modifications
 - Therapeutic agents
 - HMG-Co-A reductase inhibitors
 - Bile-acid sequestrants
 - Nicotinic acid
 - Fibric acid derivatives
 - Combination therapeutic considerations
- Metabolic syndrome
- Hematology overview
- Hematopoietic agents
 - Erythropoietin
 - Growth factors
- Anemia
 - Iron and iron salts
 - Megaloblastic anemia
 - Folic acid
 - Vitamin B₁₂
- Liver Cirrhosis

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of the lab work / classwork

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



EVIDENCE BASED PRACTICE
CODE: PHR-302
CREDITS: 3
PREREQUISITE: PHR-104

DESCRIPTION OF THE COURSE:

This is a supplemental course to Biostatistics (MBS-103), geared specifically toward pharmacy students. In order to successfully practice pharmacy, pharmacists must be able to evaluate and locate pertinent information. This course will explore the different types of resources and the proper way to evaluate clinical drug trials. After completion of the course, students will be able to present clinical studies in a concise and effective manner.

GENERAL OBJECTIVES:

- To provide the necessary tools and skills to access the most up-to-date and accurate drug information
- To prepare students to properly interpret drug information and literature
- To prepare students to effectively present drug information and studies

CONTENTS:

- Drug information overview
- Systematic approach to finding drug information
- Tertiary resources
- Online databases and resources
- Secondary resources and databases
- Primary resources
- Biomedical resources
- Clinical studies
 - General principles
 - Study designs
- Literature review and evaluation
- Descriptive studies
- Observational studies
- Clinical drug trials
- Interpreting data
- Presenting data
- Journal club presentations and target audience
- Evidence-based practice guidelines
- Seeking most current and applicable information

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Research papers / projects
- Quizzes sessions

Represents: 40% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score



SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACY CALCULATIONS
CODE: PHR-303
CREDITS: 3
PREREQUISITE: PRE-205

DESCRIPTION OF THE COURSE:

Practicing pharmacy requires the use of mathematical formulas and equations to accurately dose a variety of patient populations and well as compound pharmaceutical preparations. This course will provide students a knowledge basis to fulfill this requirement. Lectures will be supplemented by practice problems and daily homework assignments.

CONTENTS:

- Fundamental measurements and calculations
 - Decimal system
 - Roman numerals
 - Fractions
 - Percent
 - Exponential notation
 - Ratios
 - Proportions
 - Dimensional analysis
 - Shortcuts
 - Percentage of error
 - Volume measurement
 - Weight measurement
 - Aliquots
- Interpreting prescription orders
 - Abbreviations
- Metric system
 - Length
 - Volume
 - Weight
 - Equivalentents
- Dose calculations
 - Minimum effective concentration vs. minimum toxic concentration
 - Special dosing populations
 - Drug dosage
 - Body weight
 - Body surface area
 - Chemotherapy considerations
 - Heparin dosing
- Reducing and enlarging formulas
- Density, specific gravity and specific volume calculations
- Concentrations
 - Percent concentrations
 - Weight in volume
 - Weight in weight
 - Volume in volume
 - Ratio strength
 - Parts per million
 - Parts per billion
- Dilutions
 - Stock solutions
 - Dilution of acids, solids, alcohol
 - Trituration
 - Alligation
- Isotonic calculations

- Electrolyte solutions



- Milliequivalents
- Millimoles
- Milliosmoles
- Osmolarity
- Potency units and conversions
- Intravenous admixtures
 - Rate of flow
 - Parenteral nutrition calculations
 - Interpreting order forms
- Compounding calculations
- Body mass index
- Nutrition labels
- Creatinine clearance

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated homework
- Execution of classwork
- Quizzes sessions

Represents: 40% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PROFESSIONAL COMMUNICATION
CODE: PHR-304
CREDITS: 3
PREREQUISITE: PHR-104

DESCRIPTION OF THE COURSE:

This introductory course is designed to prepare pharmacy students for the profession and will focus on topics of professionalism, leadership, administration, career opportunities, practical issues affecting pharmacy, and communication skills; all of which influence patient care and pharmacist counseling.

CONTENTS:

- Pharmacy professional expectations
- Pharmacy career opportunities
 - Pharmacy residency
 - Community practice
 - Managed care practice
 - Integrated practice
 - Nuclear pharmacy
 - Specialized practice
 - Academics
 - Pharmaceutical industry
- Contemporary issues affecting pharmacy practice
- Regulatory agencies
- Leadership development
- CDC and OSHA requirements
- Professional development
- Communication skills
- Professional image and etiquette
- Interviewing skills
- Pharmacist counseling
 - Approach
 - Techniques
- Communicating with other health care professionals
- Techniques for collaborative practice

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score



SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACEUTICAL COMPOUNDING
CODE: PHR-305
CREDITS: 4
PREREQUISITE: PHR-205

DESCRIPTION OF THE COURSE:

Students will apply knowledge from Pharmaceutics (PHR-205) and the Pharmacy Calculations (PHR-303) courses to prepare safe and effective pharmaceutical products. Correct procedures for compounding and application to pharmacy practice will be taught throughout this hands-on laboratory course.

CONTENTS:

- Laboratory policies and procedures
 - Maintaining cleanliness and sanitary conditions
 - Quality dispensing procedures
 - Avoiding contamination
 - Handling compounding ingredients
 - Conduct
 - Safety
 - Using balances and measuring equipment
 - Smallest amount weighable
 - Calibration
 - Steam baths
 - Handling waste
- Powders
 - Weighing small amounts
 - Aliquots
 - Mixing
 - Geometric dilution
 - Using spatulas
 - Bulk and divided powders
 - Eutectic formations
- Solutions and suspensions
 - Preparation
 - Syrups
 - Oral solutions
 - Spirits
 - External solutions and suspensions
 - Lotions
 - Tinctures
 - Liniments
- Capsules
 - Capsule sizes
 - Filling technique
 - Aliquots
- Emulsions
 - Internal and external emulsions
 - Continental method
 - Emulsified lotions
- Nasal sprays
- Topical
 - Ointments
 - Fusion method
 - Spatulation method
 - Water washable
 - Creams
- Suppositories
 - Water soluble
 - Fat based



- Other products
 - Lozenges
 - Lollipops
 - Hormone replacement therapy
 - Bio-Cosmetics
 - Formulations for special populations
 - Trans-Dermal pain management

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Compounding prescription products

Represents: 40% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written and practical examination

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACOTHERAPY II
CODE: PHR-401
CREDITS: 10
PREREQUISITE: PHR-301

DESCRIPTION OF THE COURSE:

This is a part II of the Pharmacotherapy series where pharmacy students will learn in-depth knowledge about drug therapy for respiratory system conditions and infectious disease.

Laboratory course will focus on simulated cases students may encounter in pharmacy practice. Students will formulate appropriate therapeutic plans for each case and will learn to work collaboratively to answer clinical questions using current resources as well as knowledge obtained in Pharmacotherapy series of courses. The SOAP (subjective, objective, assessment, and plan) format will be utilized by students to present cases. Students will also learn to interpret common lab values.

CONTENTS:

- Allergy Immunology overview
- Antihistamine properties and pharmacology
 - H₁ and H₂ receptors
 - Antihistamine classes
 - Ophthalmic preparations
 - Use in sleep disorders
- Cough suppressants
- Systemic and topical decongestants
- Atopic dermatitis
- Asthma overview
 - Adrenergics and beta-adrenergics in asthma
 - Medicinal chemistry of adrenergics and beta-adrenergics
 - Long acting vs short acting agents
 - Glucocorticoids
 - Medicinal chemistry of corticosteroids
 - Inhaled vs systemic
 - Leukotriene receptor antagonists
 - Leukotriene synthesis inhibitors
 - Cromolyn and nedocromil sodium
 - Theophylline
 - Anticholinergic agents
 - Treatment guidelines
- Chronic obstructive pulmonary disease
 - Treatment guidelines
- Allergic rhinitis overview
 - Topical glucocorticoids
 - Topical antihistamines
- Antimicrobials introduction
- Antimicrobial resistance
- Antimicrobial classification and mode of action
- Microbiology review
- Sensitivity testing
- General principles of antimicrobial therapy
- Antimicrobial classes
 - Cell wall synthesis inhibitors
 - Beta-lactams
 - Protein synthesis inhibitors
 - Pharmacology
 - Aminoglycosides
 - Nucleic acid inhibitors
 - Folate synthesis inhibitors
 -



- Therapeutic management of disease states
 - Pharmacodynamics of antimicrobial agents
 - Surgical prophylaxis
 - Skin and soft tissue infections
 - Acne
 - Bone and joint infections
 - Upper respiratory tract infections
 - Ophthalmic infections
 - Meningitis
 - Tuberculosis
 - Sexually transmitted diseases
 - Nosocomial infections
 - Hospital acquired pneumonia
 - Community-acquired pneumonia
 - Gastrointestinal and intra-abdominal infections
 - Urinary tract infections
 - Endocarditis
 - Sepsis
 - Cystic fibrosis
- Immunopharmacology
- Antifungal antibiotic agents
- Fungal infections
 - Antifungal therapy
- Vaginal and vulvovaginal infections
- Parasitic diseases and treatment
- Antiviral agents and pharmacology
- Acquired immune deficiency syndrome (AIDS) and opportunistic infections
 - Pathogenesis and life cycle of HIV
 - Drug resistance
 - Principles of combination therapy
 - Nucleoside reverse transcriptase inhibitors
 - Non-nucleoside reverse transcriptase inhibitors
 - Protease inhibitors
 - Newer agents
 - Future drug targets
- Non-HIV viral infections
 - Hepatitis
- Parasitic infections
 - Pediculosis
 - Malaria
 - Helminthiasis
 - Amebiasis
 - Giardiasis
 - Trichomoniasis
 - Other protozoal infections

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of the lab work / classwork

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score



SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACOKINETICS
CODE: PHR-402
CREDITS: 4
PREREQUISITE: PHR-303

DESCRIPTION OF THE COURSE:

This course specifically designed for pharmacy students explores the basic concepts of pharmacokinetics and integrates them into clinical practice. Lectures will be supplemented by lab problem sets and calculations.

GENERAL OBJECTIVES:

- To understand drug concentration time and concentration effect relationships and clinical applications
- To explore kinetic processes of drug absorption, distribution, metabolism, and excretion
- To learn concepts and perform calculations of drug half-life, volume of distribution, area under plasma concentration-time curve, and clearance
- To understand the pharmacokinetic (PK) and pharmacodynamic (PD) relationship pertaining to drug response variability and drug monitoring

CONTENTS:

- Introduction to pharmacokinetics
 - PK-PD Models
 - Application
- Intravenous dose
 - With distribution
 - Without distribution
- Renal elimination
- Creatinine clearance
- Renal and non-renal clearance
- Extraction ratios
- Protein binding kinetics
- Drug dosing in liver disease
 - Altered dosing
 - Implications of disease
- Intravenous infusion
- Multiple dosing
 - Aminoglycosides
 - Vancomycin
 - Other applications
 - Clinical cases and calculations
- Drug absorption
- Non-linear kinetics
 - Phenytoin
 - Warfarin
 - Lithium
 - Anticonvulsants
 - Immunosuppressives
 - Clinical cases
- Drug interactions
- PK and PD clinical cases

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of the lab work / classwork



- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PROFESSIONAL DEVELOPMENT AND ETHICS
CODE: PHR-403
CREDITS: 3
PREREQUISITE: PHR-304

DESCRIPTION OF THE COURSE:

This course reviews the topic of ethics in healthcare and specifically to the practice of pharmacy. Ethics has many applications to the daily practice of pharmacy. This course will be supplemented by panel cases and discussions regarding each of the topics covered.

CONTENTS:

- Interprofessional ethics
- Working with other healthcare professionals
- Recognizing and managing ethical issues
- Principles of ethics
 - Beneficence
 - Nonmalficience
 - Autonomy
 - Justice
- Ethics in pharmacy practice
- Ethical problem solving
- Ethical implications in communication
- Values in health and illness
- Moral judgment
- Professional code of ethics
- Professional duties
- Honesty
- Disclosure
- Fidelity
- Application of ethics
 - Contraception
 - Mental illness
 - Right of refusal
 - Abortion
 - Sterilization
- Research ethics

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Team expositions on given themes
- Research papers / projects
- Quizzes sessions

Represents: 40% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score



SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



HEALTHCARE SYSTEMS
CODE: PHR-404
CREDITS: 2
PREREQUISITE: PHR-3XX

DESCRIPTION OF THE COURSE:

The goal of this course is to provide an insight into healthcare systems and the implications for pharmacy practice. Students will learn about different healthcare facilities and the corresponding role for pharmacists. Students will also learn about the pharmaceutical industry and issues affecting pharmaceutical products.

CONTENTS:

- World Healthcare Organization (WHO)
- Introduction to healthcare systems
 - African healthcare system
 - U.S. healthcare system
 - Canadian healthcare system
 - European healthcare system
 - Asian healthcare system
 - Middle Eastern healthcare system
- National public healthcare systems
- Private healthcare systems
- Hospital facilities
- Long-term care facilities
- Nursing home facilities
- Assisted-living facilities
- Other institutional facilities
- Home care
- Hospice care
- Pharmaceutical industry
- Drug importation
- Drug diversion
- Counterfeiting
- Managed care
- Pharmaceutical benefit managers (PBMs)
- Medication errors
- Medication error monitoring
- Adverse event monitoring
- Pharmacy professional services

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Research papers / projects
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 40% of the final score



SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PATIENT ASSESSMENT
CODE: PHR-405
CREDITS: 4
PREREQUISITE: PHR-3XX

DESCRIPTION OF THE COURSE:

This course follows a body-system approach to patient assessment. Through class work and coinciding lab work, students will learn and apply aspects of anatomy, physiology to common patient examination techniques.

GENERAL OBJECTIVES:

- To learn and apply terminology used in patient assessment
- To be able to differentiate normal and abnormal physical findings
- To describe normal physiology of the major body systems
- To learn how to properly record results of a physical assessment
- Perform patient assessment techniques through practical and hands-on techniques

CONTENTS:

- Physical examination techniques
- Vital signs
- Vital statistics
- Interpretation of laboratory values
- Ear examinations
- Nasal examinations
- Throat examinations
- Peripheral vascular examinations
- Diabetic foot examination
- Neurologic examinations
- Ocular examinations
- Dermatological examinations
- Mental status examinations
- Thoracic anatomy
- Respiratory examinations
- Cardiovascular examination
- Electrocardiogram interpretation
- Intramuscular injection technique
- Subcutaneous injection technique

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of the lab work / classwork
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score



SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACOTHERAPY III
CODE: PHR-501
CREDITS: 8
PREREQUISITE: PHR-401

DESCRIPTION OF THE COURSE:

This is a part III of the Pharmacotherapy series where pharmacy students will learn in-depth knowledge about therapies for neoplastic diseases, immunosuppressive agents, psychological and neurological disorders. Lectures will be supplemented with lab discussions and individual case presentations.

CONTENTS:

- Neoplastic disease
 - Cell cycle overview
 - Types and stages of cancer
 - Demographics, patient populations, and outcomes
 - Ongoing research and trends
 - Therapeutic considerations, combination and toxicity
 - Alkylating agents
 - Nitrogen mustards
 - Ethylenimines and methylmelamines
 - Alkyl sulfonates
 - Nitrosoureas
 - Triazines
 - Antimetabolites
 - Folic acid analogues
 - Pyrimidine analogs
 - Purine analogs and related agents
 - Natural products
 - Vinca alkaloids
 - Taxanes
 - Epipodophyllotoxins
 - Camptothecins
 - Antibiotics
 - Enzymes
 - Biological response modifiers
 - Miscellaneous agents
 - Platinum coordination complexes
 - Anthracenedione
 - Substituted urea
 - Methylhydralazine derivative
 - Adrenocortical suppressant
 - Tyrosine kinase inhibitor
 - Hormones and antagonists
 - Adrenocorticosteroids
 - Progestins
 - Estrogens
 - Antiestrogen
 - Androgen
 - Gonadotropin-releasing hormone analog
- Immunomodulators
 - Immune response and immunosuppression
 - Transplant therapy
 - Therapeutic tolerance and considerations
 - Immunosuppressive agents
 - Adrenocortical steroids
 - Calcineurin inhibitors
 - Antiproliferative and antimetabolic drugs
 - Antibodies
 - Immunostimulant agents



- Levamisole
 - Thalidomide
 - Interferons
 - Interleukin-2
 - Immunizations
 - Vaccines
 - Immune globulin
 - IgG
- Psychological Disorders
 - Major depressive disorder
 - Depression rating scales
 - Antidepressants
 - Monoamine oxidase inhibitors
 - Tricyclic compounds
 - Selective serotonin reuptake inhibitors
 - Serotonin and norepinephrine reuptake inhibitors
 - Atypical antidepressants
 - Augmentation
 - Remission
 - Therapeutic considerations
 - Bipolar disorder
 - Bipolar I
 - Mood disorder
 - Mania
 - Mood stabilizers
 - Anticonvulsants
 - Antipsychotics
 - Lithium
 - Attention deficit hyperactive disorder
 - Developmental disorder
 - Dopaminergic agents
 - Schizophrenia
 - Psychosis
 - Negative and positive symptoms
 - Extrapyrarnidal and neurological effects of therapeutic agents
 - Antipsychotics
 - First generation agents
 - Second generation agents
 - Anxiety
 - Generalized anxiety disorder
 - Anxiolytics
 - Benzodiazepines
 - Serotonergic agents
 - Insomnia
 - Sleep disorders
 - Hypnotics
 - Sedatives
 - Pyrazolopyrimidines
 - Benzodiazepines
 - Melatonin agonists
 - Histamine-1 blockers
 - Cognitive behavioral therapy
 - Psychological disorders in children and adolescents
- Neurological disorders
 - Epilepsy
 - Seizures
 - Brain excitation and inhibition pathways
 - NMDA receptors



- GABA receptors
- Sodium channels
- Therapeutic agents and principles of therapy
 - Hydantoins
 - Barbiturates
 - Deoxybarbituates
 - Iminostilbenes
 - Succinimides
 - Valproic acid
 - Benzodiazepines
 - Gabapentin
 - Lamotrigine
 - Levetiracetam
 - Tiagabine
 - Topiramate
 - Zonisamide
- Considerations for special populations
- Parkinson's disease
 - Neurodegenerative diseases
 - Dopamine agonists
 - Catechol-O-methyltransferase inhibitors
 - Muscarinic blockers
 - MAO-B inhibitors
 - Amantadine
- Alzheimer's disease
 - Dementia
 - Acetylcholinesterase inhibitors
 - NMDA receptor blockers

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of the lab work / classwork

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACOTHERAPY IV
CODE: PHR-502
CREDITS: 5
PREREQUISITE: PHR-401

DESCRIPTION OF THE COURSE:

This is a part IV of the Pharmacotherapy series where pharmacy students will learn in-depth knowledge about drug therapy used in endocrine and gastrointestinal disorders. Lectures will be supplemented with lab discussions and individual case presentations.

CONTENTS:

- Pituitary hormones and hypothalamic hormones
 - Properties
 - Regulation
 - Pharmacological agents and uses
- Thyroid hormone and pharmacological agents
 - Function
 - Effects
 - Disorders and targets of drug therapy
 - Iodine containing drugs
 - Thyroid inhibitors
- Estrogens and progestins
 - Function and regulation
 - Menstrual cycle overview
 - Menstrual cycle disorders
 - Therapeutic uses
 - Contraception
 - Combination products
 - Single agent products
 - Implants
 - Emergency contraception products
 - Hormone replacement therapy (HRT)
 - Osteoporosis prevention agents
 - Breast cancer
 - Pregnancy tests
 -
- Androgens
 - Function and regulation
 - Testosterone
 - Androgen disorders
 - Therapeutic agents and formulations
- Adrenocortical hormones
 - Adrenal cortex
 - Function and regulation
 - Steroids
 - Potencies and equivalent dosing
 - Peripheral actions
 - Replacement therapy
 - Adrenocortical inhibitors
 - Topical steroids
- Pancreatic disorders
 - Insulin synthesis and function
 - Diabetes mellitus
 - Type I vs. Type II
 - Gene mutations
 - Secondary to pancreatic disease
 - Secondary to other endocrine disease
 - Secondary to immune suppression
 - Secondary to drug therapy



- Insulin therapy
 - Units
 - Classification
 - Absorption
 - Properties of various agents
 - Ketoacidosis
- Oral hypoglycemic agents
 - Sulfonylureas
 - Repaglinide
 - Nateglinide
 - Biguanides
 - Thiazolidinediones
 - Alpha-glucosidase inhibitors
 - Dipeptidyl peptidase-4 inhibitors
- Glucagon function and role in diabetes
 - Glucagon-like peptide analogues
- Incretin mimetics
- Experimental agents
- Calcification and bone turnover drug agents
 - Parathyroid hormone
 - Function
 - Hyperparathyroidism
 - Hypoparathyroidism
 - Calcium
 - Function and physiologic effects
 - Bone remodeling
 - Abnormalities
 - Phosphate
 - Function and physiologic effects
 - Abnormalities
 - Vitamin D
 - Metabolic activation pathway
 - Abnormalities
 - Therapeutic drug agents
 - Calcitonin
 - Bisphosphonates
 - Fluoride
 - Osteoporosis prevention and treatment
 - Effect on bone quality
- Gastrointestinal disorders
 - Gastric acid secretion physiology
 - Suppression of gastric acid
 - Proton pump inhibitors
 - Histamine H₂-receptor blockers
 - Prostaglandin analogs
 - Sucralfate
 - Antacids
 - Gastroesophageal reflux disease (GERD)
 - Peptic ulcer disease
 - Helicobacter pylori infection
 - NSAID-related ulcers
 - Stress-related ulcers
 - Zollinger-Ellison syndrome
 - Anti-emetics and anti-nausea agents
 - Anti-flatulent agents
 - Anti-constipation agents
 - Prokinetic agents
 - Anti-diarrhea agents
- Nutrition guidelines and supplements



EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of the lab work / classwork

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



INTRAVENOUS ADMIXTURES
CODE: PHR-503
CREDITS: 6
PREREQUISITE: PHR-303

DESCRIPTION OF THE COURSE:

Intravenous admixtures will provide pharmacy students the knowledge regarding the theory, preparation, route of administration and application for sterile products. Lecture will be supplemented with hands-on lab experience.

CONTENTS:

- Sterile products
 - Containers
 - Intravenous (IV) therapy
- Laboratory policies
 - Hand washing technique
- Laminar air flow hoods
 - Technique for preparing products
 - Hood cleaning
- Isolators
 - Technique for preparing products
 - Hood cleaning
- Syringe and needle techniques
- Ampoules
- Filter needles and straws
- Powder reconstitution
- Routes for IV therapy
- Dosage forms
- Calculations
 - Fractional saline
 - mEq
 - Infusion rates
- IV therapy references and use
- Storage of IV products
- Stability of IV products
- Quality assurance for sterile product preparation
 - USP chapter 797
- Chemotherapeutic agents
- Anti-neoplastic agents
- Home healthcare
- Fluid and electrolytes
- Total parenteral nutrition (TPN)
 - Types
 - Compatibility
 - Calculations

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Quizzes sessions

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 20% of the final score

SCORE 4

Evaluates: Execution of the lab work and final product preparation

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



TOXICOLOGY
CODE: PHR-504
CREDITS: 3
PREREQUISITE: PHR-402

DESCRIPTION OF THE COURSE:

This course will provide pharmacy students an introductory knowledge of general toxicology and its application to pharmacy practice.

CONTENTS:

- Principles of toxicology
- Exposure
- Dose-threshold for response
- Maximal response
- Dose dependency
- Toxicological testing
- Animal as predictors of human toxicity
- Toxic mechanisms
- Inhalation toxicology
- Carcinogenesis
- Heavy metal toxicity
- Acute poisoning
- Antidotes
- Acute treatment
- Role of emesis
- Application with case studies
- Current toxicological issues
 - Tobacco
 - Salmonella
 - Chlorinated hydrocarbons
 - Toxic shock syndrome
 - Ricin
 - Cyanide
 - Carbon monoxide
 - Asbestos
 - Radiation
- Common pharmacotherapeutic agents
 - Digoxin
 - Herbals
 - Estrogens and carcinogenicity
 - Statins
 - Steroids
 - Growth hormone
 - Antipsychotics
 - Antidepressants
 - COX-2 inhibitors
 - Analgesics

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of classwork
- Quizzes sessions

Represents: 20% of the final score



SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 20% of the final score

SCORE 4

Evaluates: Research paper / project

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACOTHERAPY V
CODE: PHR-601
CREDITS: 8
PREREQUISITE: PHR-502

DESCRIPTION OF THE COURSE:

This is a part V of the Pharmacotherapy series where pharmacy students will learn in-depth knowledge about drug therapy used in anesthesia, chemical dependence, drug intoxication, drug withdrawal, and analgesia.

CONTENTS:

- General anesthetics
 - GABA receptors
 - NMDA receptors
 - Sodium channels
 - Therapeutic drug agents
- Muscle relaxants
 - Nicotinic receptors
 - Depolarizing and non-depolarizing blockers
- Analgesia
 - Pain assessment
 - Endorphins
 - Enkephalins
 - Opioid receptors
 - Morphine
 - Opioids
 - Chronic therapy
 - Breakthrough therapy
 - Conversion dosing
- Headaches
 - NSAIDs
 - Neurovascular agents
 - Triptans
- Anti-pyretics
 - Acetaminophen
- Intoxication
 - Blood alcohol level
 - Respiratory depression
 - Therapeutic agents
- Withdrawal
 - Management
 - Therapeutic agents
- Addiction
 - Drug abuse
 - Chemical dependence
 - Neurotransmitter dysregulation
 - Mesolimbic dopamine system
 - Genetic contributing factors
 - Pharmacological treatment
 - Naltrexone
 - Acamprosate
 - Nicotine replacement
 - Bupropion
 - Methadone
 - Buprenorphine
 - Cognitive behavioral therapy



EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Execution of the lab work / classwork

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's performance in the final practical / oral examination

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



COMMUNITY AND HOSPITAL PHARMACY
CODE: PHR-602
CREDITS: 6
PREREQUISITE: PHR-5XX

DESCRIPTION OF THE COURSE:

This course will provide introductory information for pharmacy students into the community and hospital practice settings which they will encounter during early practice experience. Lecture courses will prepare students for required final oral presentations. Students will be required to gain 40 hours of experience in a community or hospital pharmacy setting as a student pharmacist intern.

CONTENTS:

- Community Pharmacy (Retail)
 - Organization
 - Personnel
 - Communication issues
 - Maintaining patient privacy
 - Quality standards
 - Regulatory authorities
 - Pharmacy council
 - Ministry of Health
 - Department of Health
 - U.S. Food and Drug Administration
 - Pharmacy ownership and management requirements
 - Personnel management
 - Safeguarding medications
 - Drug distribution and pedigrees
 - Prescriptions
 - Drug dispensing
 - Medication errors and prevention
 - Patient communication
 - Pharmacists providing patient care in community settings
 - Nonprescription and self-care approach
 - Ongoing initiatives and current issues in community pharmacy practice
- Hospital Pharmacy (Institutional)
 - Organization
 - Hospital personnel
 - Communication issues
 - Maintaining patient privacy
 - Joint Commission on Accreditation of Healthcare Organizations (JCAHO) Standards
 - Pharmacy Standards
 - American Society of Health-System Pharmacists (ASHP) Guidelines
 - Quality assurance of sterile products
 - Preventing medication errors
 - Handling hazardous drugs
 - Pharmacists role
 - Drug dispensing and administration
 - Pharmacist role in institutional practice
 - Managing pharmacy technicians
 - Pharmacy and Therapeutics Committee
 - Hospital formularies
 - Controlled substances and drug diversion
 - Physician orders
 - Medication errors and prevention
 - Pharmacist clinical management of patients
 - Institutional pharmacy residency programs and opportunities



EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

SCORE 4

Evaluates: student's evaluation during early practice experience

Represents: 20% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



PHARMACY REGULATIONS
CODE: PHR-603
CREDITS: 6
PREREQUISITE: PHR-5XX

DESCRIPTION OF THE COURSE:

Due to the diversity of pharmacy regulations across countries, this course will provide an insight into how the practice of pharmacy is regulated in different parts of the world and will discuss several organizations devoted to the regulating the pharmacy profession. Since this is an ever-changing process, the instructor may deviate from the topics covered as they become relevant to pharmacy practice.

CONTENTS:

- Global regulatory objectives
 - Government involvement vs. private sector involvement
 - Ownership and chain pharmacy legislation
 - Licensing and registration of pharmacies
 - Pharmacist qualifications
 - Pharmacy professional practice limitations
 - Pharmacy personnel
 - Financial availability
 - Drug quality and safety standards
 - Counterfeit drug policies
 - Drug pedigrees
 - Controlled substances
 - Developed countries vs. underdeveloped countries
 - Regulatory capacity
 - Dispensing doctors
 - Other drug distributors
 - Pricing
 - Quality control
 - Pharmacist role in healthcare
- Health and pharmaceutical expenditure trends
- World Health Organization
 - Complexity of regulatory process
 - Clinical trials
 - Good manufacturing process
 - Quality, safety, and efficacy
 - Regulatory inspections
 - Post-marketing surveillance
 - Global initiatives
- Food and drug administration (FDA)
- African regulatory authorities
 - Capacity for regulation
 - Benefits and challenges
 - Integration of resources
 - Progress
 - Drawbacks
 - Standardizing policies
 - Patents
- World Health Organization Regional Office for Africa (AFRO)
 - <http://www.afro.who.int/>
 - Department functions and goals
 - Medicine regulation
- Economic Community of West African States (ECOWAS)
 - Drug control objectives and policies
 - Regional medicine regulatory plans
- World Health Organization Regional Office for Southeast Asia (SEARO)
 - <http://www.searo.who.int/index.htm>



- World Health Organization Regional Office for the Eastern Mediterranean (EMRO)
 - <http://www.emro.who.int/index.asp>
 - Medicine registration
- World Health Organization Regional Office for Europe (EURO)
 - <http://www.euro.who.int/en/home>
- Selected African regulatory agencies and rules
 - Ministry of Health
 - Pharmacy Council
 - Department of Health
 - Code of Ethics
 - National Medicines and Poison Board
 - Pharmacist Council of Nigeria Act 1992
 - National Agency for Food and Drug Administration and Control (NAFDAC) (Nigeria)
 - Cameroon Drug Law 1980
 - National Drug Policy and Authority Regulations 1995 (Uganda)
 - Pharmacy and Drug Act 1971 (Uganda)
 - National Drugs Policy and Authority Statute 1993 (Uganda)
 - Pharmacy Profession and Pharmacy Practice Bill 1999 (Uganda)
 - Pharmacy Act 1994 (Ghana)
 - National Drugs Policy 2004 (Ghana)
 - Pharmacy in Public Health of Cote d'Ivoire "Draft of the Manual of Procedures of System of Management and Quality of Pharmacy in Public Health" 2007
 - Pharmacy, Poisons Cosmetics and Medical Devices Act (Sudan)
 - Federal General Directorate of Pharmacy (FGDOP) (Sudan)
 - Pharmacy Act 153 1974, amended 1997, enacted 2003 (South Africa)
 - National Drug Policy 1996 Medicines and Related Substances Control Act 1965, amended 1997 (South Africa)
- International Pharmaceutical Federation (FIP)
- African Pharmaceutical Association (APA)
- Pharmaceutical Society of South Africa (PSSA)
- South African Association of Hospital and Institutional Pharmacists (SAAHIP)

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Research papers / projects

Represents: 40% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment



INTRODUCTION TO PHARMACY PRACTICE EXPERIENCE
CODE: PHR-604
CREDITS: 4
PREREQUISITE: PHR-5XX

DESCRIPTION OF THE COURSE:

This course will provide pharmacy students an insight into the pharmacy early practice experience rotations during the last 2 trimesters of the program. This will be an activity-based course to introduce pharmacy practice and the role of pharmacy students on rotations. Students will become certified in Basic Cardiac Life Support (CPR) and in the administration of immunizations through written and practical examination.

CONTENTS:

- Etiquette
- Professionalism
- Helpful references
- Institutional management of medication use systems
 - Application to patient-specific populations
 - Quality assurance
 - Optimizing patient outcomes
 - Identifying and reducing medication errors
- Health policies and pharmacist involvement
- Effective communication and collaborative practice
 - Physicians
 - Nurses
 - Technicians
 - Patients
 - Caregivers
 - Administrative personnel
 - Reducing medication errors
- Medication safety exercises
 - Drug shortages
 - Counterfeit drugs
 - Common medication errors and prevention
 - Miss-fill exercises
 - Documentation of events
 - Adverse drug event documentation
- Medication use review project
- Disease state review project
- Formulary review project
- New drug monograph presentation
- Advanced laboratory value interpretation
- Interpretation of microorganism sensitivity testing
- Basic interpretation of X-ray and MRI findings
- Patient counseling exercises
 - Outpatient
 - Inpatient
 - Ambulatory care
- Self-care and nonprescription pharmacotherapy assessment
- Basic cardiac life support (CPR) training and certification
 - Recovery position
 - Rescue breathing
 - Adult
 - Child
 - Infant
 - Foreign body obstruction airway management
 - One rescuer method
 - Two rescuer method
 - Mouth to mask ventilation



- Automatic external defibrillator (AED)
- Immunization training and certification
 - Patient screening
 - Aseptic technique and administration
 - Intramuscular injections
 - Subcutaneous injections
 - Blood borne pathogens
 - Incident reporting
 - Hazardous exposure guidelines

EVALUATION:

Students' academic performance will be evaluated as follows:

SCORE 1

Evaluates: the overall performance of the student during the entire term, in:

- Class discussions
- Elaborated papers / homework
- Quizzes sessions

Represents: 20% of the final score

SCORE 2

Evaluates: student's performance in the midterm examination(s)

Represents: 20% of the final score

SCORE 3

Evaluates: student's performance in the final written examination

Represents: 20% of the final score

SCORE 4

Evaluates: student's performance on oral presentations throughout course

Represents: 40% of the final score

BIBLIOGRAPHY:

See the Bibliography Attachment