YEAR: FIRST
SUBJECT: General Biology (Plant)
THEORITICAL HOURS: 3
PRACTICAL HOURS: 3
UNITS: 4.5

General Biology ……. Theoretical Syllabus…… First Semester

Course module description:

This course is equivalent introduction of Biology and the aims of this course are to give a principle an understanding of biological processes and to give a number of fundamental biological terms. To help, students review the scientific method, microscope use, and basic cell biology.

Course/module academic calendar

Week	Basic material to be covered	Hours
1	**Plant kingdom (Overview)**	3
2	The important of plant , Energy Producer	3
3	**Main Characteristics of Life-1:** ,Reproduction evolution	3
4	**Main Characteristics of Life -1**: Heredity	3
5	**Plant Morphology**	3
6	**Plant Taxonomy** -1: Binomial Nomenclature	3
7	**Plant Taxonomy** -2: Binomial Nomenclature	3
8	**Plant Tissues:** Leaf , Stem	3
9	**Plant Tissues:** root ,dicot	3
10	**Plant movement:** geotropism ,Phototropism	3
11	**Plant Physiology**: Hormones	3
12	**Plant Physiology:** Photosynthesis	3
13	**plant ecology:** Mesophyte , Xerophyte	3
14	**Plant Pathology:** Disease & host Risk	3
15	**Plant Pathology**: Disease & host Risk	3

General Biology (Plant) ……. Practical Syllabus…… First Semester

Course/module academic calendar

Week	Basic material to be covered	Hours
1	Microscope	3
2	Plant Cell (Live & non- live components)	3
3	Plant Cell structure	3
4	Mitosis	3
5	Primary Meristerm	3
6	Epidermis	3
7	Dicotyledons & Monocotylédones	3
8	Parenchymal Tissue	3
9	Collenchymas Tissue	3
10	Sclerenchyma tissue	3
11	Xylem	3
12	Phleom	3
13	Root,	3
14	Stem	3
15	Leaf & Flower	3

Text books:

- **Essentials of The Living World**, 4th Edition, By George Johnso, ISBN: 0073525472 ,Copyright year: 2013.

References:

- **Biology-Concepts and Connections. N**. Campbell, J. Reece, L. Mitchell, & M. Taylor, 4th Edition. Benjamin Cummings, Menlo Park, CA 2003.

YEAR: FIRST
SUBJECT: General Biology (Animal)
THEORITICAL HOURS: 3
PRACTICAL HOURS: 3
UNITS: 4.5

General Biology (Animal) …. Theoretical Syllabus…… Second Semester

Course/module academic calendar

Week	**Basic material to be covered**	**Hours**
1	Overview of Biology	3
2	**The Animal Kingdom -1** (Invertebrate) Protozoa	3
3	**The Animal Kingdom -2:** (invertebrate) (parasites)	3
4	**The Animal Kingdom -3:** (invertebrate) (parasites)	3
5	Cellular Organization, Chemistry of Cell , animal tissues	3
6	Photosynthesis	3
7	Energetics , Fermentation, Cellular Respiration, Cellular Respiration & Metabolism	3
8	Photosynthesis , Mitosis & Cell Cycle , Meiosis ,	3
9	Heredity & Mendelian Genetics ,	3
10	Molecular Genetics – DNA	3
11	Transcription & Translation,	3
12	Viruses , Bacteria , protists , fungi	3
13	Homeostasis , Excretion, Circulation	3
14	Endocrine System , Nervous System	3
15	Evolution , Ecology, Ecosystems	3

General Biology (Animal) ……. Practical Syllabus…… Second Semester

Course/module academic calendar

Week	Basic material to be covered	Hours
1	The Microscope	3
2	Animal Cell (Structure, Live & non Live Contents, Cell Types, Cell Division.	3
3	**Animal Tissues :** (Epithelial Tissues – Types of Epithelial Tissues, Types of Stratified Epithelial Tissues ,	3
4	Types of Glandular Epithelial Tissues	3
5	Types of Connective Tissues ,Structural Connective Tissues,	3
6	Types of Cartilage , Hard Bone, Vascular Connective Tissues (R.B.C, W.B. C ,Platelets ,	3
7	Muscle Tissues (Smooth Muscle , Striated muscle , Cardiac muscle) Nervous System (Nerve Cell, Spinal Nerve System , Nerve Ending , Spinal cord cross-section)	3
8	Animal Phylumes (Protozoa – flagellates –Cilliophora) , morphology – sexual reproductive ,non - sexual reproductive – means defense .	3
9	Nemat helimenthes Phylum (morphology –anatomy –egg- miracidium-sarkaria -	3
10	Tapeworms (morphology –anatomy – mature segment –head –egg – cyst phase	3
11	Nematodes -*Enterobius*, *Trichuris*, *Ascaris* , *Trichinella*, *Hookworms, Stongyloides* ,(morphology , sex, male, female, cross- sections , egg) . 2- Angilostoma :(male , female ,egge)	3
12	Ring Worm ,& Trematodes: Schisotosomes (Blood Flukes) (male ,female ,sections, eggs)	3
13	Morphology of Arthropod , Crustacea , Molluscs Phylum , oysters , + Cross –section	3
14	Phylum Cnidaria – morphology of Hydra, anatomy of Hydra,	3
15	Phylum Vertebrates- Amphibians (morphology of FROG ,mouth, muscles,) (anatomy of frog)	3

Text books:

- **Essentials of The Living World**, 4th Edition, By George Johnso, ISBN: 0073525472 ,Copyright year: 2013.

References:

- **Biology-Concepts and Connections. N**. Campbell, J. Reece, L. Mitchell, & M. Taylor, 4th Edition. Benjamin Cummings, Menlo Park, CA 2003.

YEAR: FIRST
SUBJECT: Computer Science
THEORITICAL HOURS: 2
PRACTICAL HOURS: 2
UNITS: 3

Computer science … theoretical syllabus

Course module description:

- to understand and be able to apply the underlying principles of Computer Science to a variety of problem domains.
- to develop good communication skills so that they can solve problems and communicate their solution.
- to develop strong analytical skills so that they can quickly assess how to solve problems.
- to be able to work in groups and appreciate the dynamic and collaborative nature of problem solving; to be equipped with a thorough understanding of the development process of software including design, implementation, documentation, and testing.

Course/module academic calendar

Week	Basic material to be covered	Hours
1-2-3	Computer Lab .Vist-Demonstration of Computer Parts	6
4-5-6-	Computer Science Terminology –GW Basic Programming	6
7-8-9-10	Operating System (MS –Dos & Windows)	8
11-12-13-14-15	Microsoft Office Program : word, Power point, And Excel)	10

Computer Science … Practical Syllabus

Course/module academic calendar

Week	Basic material to be covered	Hours
1-2	Computer Lab .Vist-Demonstration of Computer Parts	4
3-4-5	Computer Science Terminology –GW Basic Programming	6
6-7-8-9-10-11	Operating System (MS –Dos & Windows)	12
12-13-14-15	Microsoft Office Program : word, Power point, And Excel)	8

Text books:

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References:

YEAR: FIRST
SUBJECT: General Chemistry (Analytical)
THEORITICAL HOURS: 2
PRACTICAL HOURS: 2
UNITS: 3

General Chemistry (analytical)…… Theoretical Syllabus… First Semester

Course module description:

- To reinforce chemical principles central to analytical chemistry.
- To introduce instrumental techniques for chemical measurement.
- To develop critical thinking for interpreting analytical data.
- To select instrumentation appropriate to the measurement need

Course/module academic calendar

Week	Basic material to be covered	Hours
1-2	Atoms & Electrical Structure/Periodic Table	4
3-4	Chemical Bonding	4
5-6	Formula Masses / The Molecular Formula	4
7-8-9	Acid Base Theory/Ionization constant/Auto-ionization water/ Measurement of PH	6
10-11-12-13	Chemical Quantitative Analysis /Standard Solution/ Titration of Acid Base Indication.	8
14-15	Buffers/Bio-Chemical Buffers	4

General Chemistry (analytical)…… Practical Syllabus… First Semester

Course/module academic calendar

Week	Basic material to be covered	Hours
1-2	General Introduction (Chemicals, Instruments)	4
3-4	Introduction of Analytical Analysis	4
5-6-7	Qualitative Analysis of Cations & Aions	6
8-9	Preparation of Solutions	4
10-11	Titration Analysis	4
12-13	Acid – Base Titrations	4
14-15	Precipitation Titrations	4

YEAR: FIRST
SUBJECT: General Chemistry (organic)
THEORITICAL HOURS: 2
PRACTICAL HOURS: 2
UNITS: 3

General Chemistry (organic)…… Theoretical Syllabus… Second Semester

Course/module academic calendar

Week	Basic material to be covered	Hours
1-2	Overview of Organic Chemistry Lab. Introduction of Alkenes	4
3	Alkenes and Cycloalkenes	2
4	Alkenes and Cycloalkenes	2
5-6	Aromatic Compound	4
7	Organic Halides	2
8	Ethers	2
9-10	Alcohols & Phenols	4
11-12	Aldehydes & Ketones	4
13-14	Carboxylic Acids	4
15	Amines	2

General Chemistry (organic)…… Practical Syllabus… Second Semester

Course/module academic calendar

Week	Basic material to be covered	Hours
1-2	Preparation of Buffer's Solutions	4
2-3	PH Values	4
4-5	Crystallization	4
6-7	Preparation of Acetylene	4
8-9	Preparation of Aspirin	4
10-11	Qualitative Analysis of Function Organic Groups	4
11-12	General Tests of Carbohydrate	4
13	General tests of Proteins	2
14-15	General tests of Lipids	4

Text books:

- Analytical Chemistry,Gray D. Christain ,Wiley,6thedition,2004

References:

- Modern Analytical Chemistry ,david Hervey, Ist edition,2000
- Organic Chemistry note,AN,online, 2006.

YEAR: FIRST
SUBJECT: Physics (1)
THEORITICAL HOURS: 2
PRACTICAL HOURS: 2
UNITS: 3

Physics (1)…… Theoretical Syllabus… First Semester

Course module description:

This course will explore topics in bio-electricity based on the classical theory of electricity and magnetism and will introduce nuclear physics in biology and medicine. Topics in electricity and magnetism will include: neuro-biophysics (nerve signals, action potentials, synapses, brain); electrical stimulation of the heart; molecular nature of vision and hearing; diffusion; membrane potential; fluorescence in bio-molecules; lasers in biology and medicine.

Course/module academic calendar

Week	Basic material to be covered	Hours
1	Terminology (Biophysics, Medical Physics, Physical Medicine, Physical Therapy.	2
2-3	Introduction to Biophysics: Historical overview, Connections with physics, Biology and Medicine.	4
4-5	Principle of Measurement. Physical units of measurement, their systems., ways to express it.	4
6-7	Fundamental notions of Dynamics: Mass, Acceleration, Force, Stress, Pressure.	4
5-6	The SI system. Measurement Uncertainty	4
8	The Newton's laws	2
9	Rotational Motion	2
10-11	Newton's Second Law	4
12-13	Kinetic energy of rotation	4
14-15	Heat ,	4

Physics (1)…… Practical Syllabus… First Semester
Course/module academic calendar

Week	Basic material to be covered	Hours
1	Viscosity of liquids	2
2-3	Focal length of Convex Lens (Graphical Methods)	4
3-4	Ohm's Law	4
5-6	Boyle's Law	4
7-8	Semiconductors (Junction diode)	4
9-10	Resonance Frequency	4
11-12-13	The Focal length of Converging Lens (displacement Method)	6
14-15	Wheatston Bridge	4

FIRST: YEAR
SUBJECT: PHYSICS (2)
THEORITICAL HOURS: 2
PRACTICAL HOURS: 2
UNITS: 3

Physics (2)…… Theoretical Syllabus… Second Semester

Course/module academic calendar

Week	Basic material to be covered	Hours
1-2	Kinetic Energy Theory of Gas (account of gas pressure, correlation between kinetic energy & heating , Maxwell law)	4
3	Fluid Viscosity	2
4	Fluid Properties	2
5-6	Wave motion &Equation of Wave motion	4
7-8	Reflection and Refraction at flat surfaces	4
9-10	Microscopes (polarization microscope, UV microscope , electronic microscope)	4
11-12-13	Conduction in Solids (Ohm's law, Connecting resistors – parallel and succession , Resistivity ,	6
14	Alternating Current	4
15	Radiation	4

Physics (2)…… Practical Syllabus… Second Semester

Course/module academic calendar

Week	Basic material to be covered	Hours
1-2	Cathode Ray Oscilloscope	4
3-4	G.M Tube & Beta , Gamma Radiation	4
5-6	Reflective Index	4
7-8	Diffraction Grating	4
9-10	Laser Diffraction	4
11-12	Surface Tension of Water by Capillary Tube Method	4
3-14	Thermocouple	4
15	Speed of Sound	2

Text books:

- Physics in biology& medicine ,academic press, 3thd edition,2008,
- Compendium of Medical Physics, Medical Technology and Biophysics, By Nico A.M. Schellart,2nd edition,2008.

References:

- Biophysics: An Introduction , Springer , edition 2000,2010

SUBJECT: Statistics
PRACTICAL HOURS: 2
UNITS: 2

Statistics…… Theoretical Syllabus

Course/module academic calendar

Week	Basic material to be covered	Hours
1	Biostatistics - definition - statistical methods - basic principles.	2
2-3	Variables - measurements, functions, limitations and uses of statistics.	4
4	Collection of data primary and secondary	2
5	types and methods of data collection procedures - merits and demerits.	2
6	Classification - tabulation and presentation of data - sampling methods.	4
7	Measures of central tendency - mean, median, mode, geometric mean - merits & demerits	
8	Discrete Probability Distribution Measures of central tendency - mean, median, mode, geometric mean - merits & demerits.	2
9	Measures of dispersion - range, standard deviation, mean deviation, quartile deviation - merits and demerits; Co-efficient of variations.	
10	Correlation - types and methods of correlation,	4
11	regression, simple regression equation, fitting prediction, similarities and dissimilarities of correlation and regression.	2
12	Tests of Hypothesis , Z- distribution	2
13	T- Distribution	2

Text books:

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References:

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Year: First
SUBJECT: ENGLISH
Theoretical Hours: 2
UNITS: 2

English…… Theoretical Syllabus

Course/module academic calendar

Week	Basic material to be covered	Hours
1	The Elements of a Sentence in English	2
2	The kinds of a Sentence in English	2
3	The Articles	2
4	How to make a Question.	2
5	How to answer the Question.	2
6-7	Passage No. 1 A Puma at large (comprehension, Vocabulary, Special Difficulties)	4
8	The present simple Tense	2
9-10	Passage No. 2 Thirteen Equals One (comprehension, Vocabulary, Special Difficulties)	4
11	Passage No. 3 An Unknown Goddess (comprehension, Vocabulary, Special Difficulties)	2
12	The present continuous Tense	2
13	The past simple tense	2
14	The past Continuous Tense	2
15	The Future Tense	2

Text books:

- English grammer in use,Raymond,Murphy,Cambridge University Press,2nd Edition,1194.

References:

- Jack,Ian,Intention &Idiom in English poetry,1660-1750,New delhi,Capital Creation,2004.. introduction Oxford Black,well publisher
- Mey,Jacob,L 1993,Praymatics:

المرحلة : الاولى
المادة : لغة عربية
عدد الساعات : 2
عدد الوحدات : 2

عدد الاسابيع	**اللغة العربية – النظري**
1	النحو – اقسام الكلام –الاسماء الفعل. الحرف - الاسم - تعريفه – علاماته
2	اقسام المعارف – العلم – الضمائر
3	اسماء الاشارة - المعرف بالـ - المعرف بالاضافة
4	المثنى واعرابه - الجمع المذكر السالم - الجمع المؤنث السالم -
5	الجمع المؤنث السالم - جمع التكسير – جمع الكثرة
6	الاسماء الخمسة - الفعل الماضي واعرابه - الفعل المضارع واعرابه
7	الفعل الامر واعرابه -
8	كان واخواتها – ان واخواتها
9	الادب – تعريف الادب - فنون الادب
10	فن الشعر - فن القصة
11	شرح القصيدة مع تحليلها وحفظ عشرة ابيات منها - حياة شاعر (زهير بن سلمى)
12	ايات القرآن الكريم حفظ وشرح - خطبة الرسول _ص) في الانصار بعد موقعة مؤته
13	عينية ابي ذؤيب الهذلي::: حياة الشاعر - نونية بن زيدون ... حياة الشاعر
14	قصيدة احمد شوقي ..... ولد الهدى فالكائنات ضياء .... وفم الزمان تبسم وثناء
15	..... حياة الشاعر احمد شوقي

الكتب المنهجية :

- شرح ابن عقيل على الالفية، بهاء الدين الهمداني المصري ، ومعه كتاب منحة الجليل بتحقيق ابن عقيل لمحمد محيي الدين عبد الحميد ، مكتبة الهداية ، اربيل – العراق .

الكتب المصدرية :

- شرح الرضي على الكافية ، الرضي الاسترابادي ، تح : يوسف حسن عمر، منشورات قار يوسف –بنغازي ، ط2 -1996.

المرحلة : الاولى
المادة : حقوق انسان
عدد الساعات : 2
عدد الوحدات : 2

الفصل الاول

حقوق انسان – النظري	عدد الاسابيع
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المادة : ديمقراطية
عدد الساعات : 2
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الكتب المنهجية :
- حقوق الانسان في العراق

الكتب المصدرية :
- كتاب دور حقوق الانسان في تشكيل سياسة الحكومات.
- كتاب حقوق الانسان للافراد والمجتمع