| Programme Name | Bachelor of Science (Biology-Physics) Undergraduate degree program |
|---|---|
| Programme Description | The general aim of programme is to provide students with an extended foundation in physics and biology together with the ability to acquire extensive subject knowledge in the discipline that will underpin ongoing professional development, preparing graduates for further study in physics, biology or another science or non-science related discipline or for a career in a physics related field or in other areas where the range of skills and knowledge acquired is needed or desirable. This programme allows the students to major in two subjects' area by completing six (6) and seven (7) compulsory and at least two (2) and two (2) elective courses in biology and physics discipline, respectively. |
| Majors | Biology and Physics |
| Minimum Requirements | The minimum entry requirement for this programme is a pass (200/400) in form seven or Foundation Science programme, with emphasis on Mathematics, English and two of the Biology and Physics subjects.<br><br>Mature students with a minimum age of 23 years and relevant work experience may also be considered for candidature. |
| Duration | 3 Years on Full time |
| Programme Type | Bachelor Degree |
| College Name | College of Engineering, Science and Technology |
| Campus | Lautoka and Samabula/Nabua (Year 1 – 3) |
| Credit Points | 360 |

**Credit Value**

1. Bachelor of Science double major consists of –
    a. A total credit of not less than 360 points from units at 500 – 700 level.
    b. A pass in three generic units.
2. A double major in a science subject is awarded upon completion of –
    a. At least 120 credits each in two of the subjects
    b. In each majoring subject at least 20 - 25 credits are 500 level, 40 – 50 credits at 600 and 700 level in each of the major subject. This means each student will have to complete at least 2 units at 500 level, 3 units at 600 level and 3 units at 700 level in each majoring subject.
    c. At least 60 credits from any other subject units at 500 – 700 level or their equivalent.
    d. Criterion 1 and 2 applies simultaneously.

**Physics units for Bachelor of Science (Double Major):**

*At least 120 credits (i.e. 1200 Learning hours) from chemistry units with;*

**PHY504, PHY505, PHY510, PHY607, PHY608, PHY704, PHY707** (core units)

*and at least one 600 unit from elective group-1 and one 700 unit from group-2:*

*group-1: PHY601, PHY602, PHY603, (604, 606)*

*group-2: PHY703, PHY706, PHY708, PHY709*

**Biology units for Bachelor of Science (Double Major):**

*At least 120 credits (i.e. 1200 Learning hours) from biology units with;*

**BIO509, BIO510, BIO602, BIO603, BIO702, BIO703** (core units, compulsory)

*and at least one 600 and one 700 course from elective group-1 and group-2:*

*group-1:* BIO508, BIO511, BIO604, BIO605, BIO606

*group-2:* BIO704, BIO705, BIO706, BIO707

*Please consult respective HOD & Department document for availability of elective units and unit plan in both majoring subjects.*

| Programme Structure | | |
|---|---|---|
| **Course Code** | **Course Title** | **Credit Points** |
| | **Year 1 Semester 1** | |
| BIO509 | Botany | 15 |
| PHY504 | Mechanics and Fluids | 15 |
| CIN506 | Generic Unit: Computer Principles | 15 |
| LNG501 | Generic Unit: English for Academic Studies | 15 |
| | **Year 1 Semester 2** | |
| BIO510 | Zoology | 15 |
| PHY505 | Electricity and Magnetism | 15 |
| PHY510 | Oscillations, Waves and optics | 15 |
| ETH501SEM | Generic Unit: Ethics, Values and Governance | 15 |
| | **Year 2 Semester 1** | |
| Elective 1 PHY | Physics Elective 600 --- PHY601, 602, 603, (604, 606) | 15 |
| Elective 2 BIO | Biology Elective 600 --- BIO604, 605, or 606 | 15 |
| Elective 3 | BIO or PHY 600 --- see above, and also BIO508, 511 | 15 |
| Elective 4 | BIO or PHY 600 --- see above | 15 |
| | **Year 2 Semester 2** | |
| BIO602SEM | Applied Microbiology | 15 |
| BIO603SEM | Genetics and Evolution | 15 |
| PHY607 | Thermodynamics and Statistical Mechanics | 15 |
| PHY608 | Modern Physics | 15 |
| | **Year 3 Semester 1** | |
| BIO702 | Applied Animal Physiology | 15 |
| BIO703 | Applied Plant Physiology | 15 |
| PHY704 | Quantum Mechanics and Atomic Physics | 15 |
| Elective 5 | BIO or PHY Elective 700 | 15 |
| | **Year 3 Semester 2** | |
| PHY707 | Nuclear and Particle Physics | 15 |
| Elective 6 BIO | BIO Elective 700 --- BIO704, 705, 706, or 707 | 15 |
| Elective 7 PHY | Physics Elective 700 --- PHY706, 708, 709 | 15 |
| Elective 8 | BIO or PHY Elective 700 --- see above | 15 |
| **Total Credit Points** | | **360** |

| Course Prerequisite | | |
|---|---|---|
| **Course Code** | **Course Title** | **Prerequisite** |
| ETH501SEM | Intermediate Ethics and Governance | Pass in year 13/Form 7 or equivalent |
| CIN506SEM | Computer Principles | Pass in year 13/Form 7 or equivalent |
| LNG501SEM | English for Academic Studies | A pass in Form 7/Year 13 exam with a minimum total of 200 marks or equivalent. Recognition would be given to mature aged students who do not meet the 13 years of continuous progression but who have relevant work experience and prior learning. |
| BIO509SEM | Botany | Pass in year 13/Form 7 with biology or equivalent |
| BIO508SEM | Cell Biology | Pass in year 13/Form 7 with biology or equivalent |
| BIO510SEM | Zoology | Pass in year 13/Form 7 with biology or equivalent |
| BIO511SEM | Introductory Biology | Pass in year 13/Form 7 or Foundation Biology |
| PHY504 | Mechanics and Fluids | Pass in year 13/Form 7 with physics or equivalent |
| PHY505 | Electricity and Magnetism | Pass in year 13/Form 7 with physics or equivalent |
| PHY510 | Oscillations, Waves, and Optics | Pass in year 13/Form 7 with physics or equivalent |
| BIO602SEM | Applied Microbiology | BIO509SEM and BIO510SEM |
| BIO603SEM | Genetics and Evolution | BIO509SEM and BIO510SEM |
| BIO605SEM | Invertebrate Biology | BIO510SEM |
| BIO604SEM | Ecology | BIO509SEM and BIO510SEM |
| BIO606SEM | Tropical Plant Biology | none |
| PHY601 | Environmental Physics | None |
| PHY602 | Electronics | None |
| PHY603 | Electromagnetism | None |
| PHY604 | Astronomy | None |
| PHY606 | Medical Physics | None |
| PHY607 | Thermodynamics and Statistical Mechanics | PHY505/PHY510 |
| PHY608 | Modern Physics | PHY505/PHY510 |
| BIO702SEM | Applied Animal Physiology | BIO510SEM and BIO603SEM |
| BIO703SEM | Applied Plant Physiology | BIO509SEM and BIO603SEM |
| BIO704SEM | Marine Biology | BIO510SEM |
| BIO705SEM | Molecular Biology and Biotechnology | BIO508SEM and BIO603SEM |
| BIO706SEM | Embryology (Animals and Plants) | BIO509SEM, BIO510SEM and BIO603SEM |
| BIO707 | Evolution | BIO603 |
| PHY703 | Renewable and Sustainable Energy | PHY607 |
| PHY704 | Quantum Mechanics and Atomic Physics | PHY607/PHY608 |
| PHY706 | Solid State and Semiconductor Physics | PHY505 |
| PHY707 | Nuclear and Particle Physics | PHY607/PHY608 |

| | | |
|---|---|---|
| PHY708 | Principles of Conservation and Utilization of Energy | PHY607 |
| PHY709 | Radiation Detection and Measurements | PHY607, 608 |
| PHY703 | Renewable and Sustainable Energy | PHY607 |
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