**Bachelor of Science Program in Biology**

**Name of Degree:** Bachelor of Science (Biology)

**Abbreviation:** B.Sc. (Biology)

**Curriculum**

**Total Credits** **140 Credits**

**Curriculum Structure**

**General Education 30 Credits**

**Required Courses (\*) 104 Credits**

Elective Courses (\*\*) 9 Credits

**Free Elective 6 Credits**

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| **First Year , 1st Semester** | **Number of Credit** |
| **Course Number** | **Course Title** |
| 311 101\* | Biology I | 3(3-0-6) |
| 311 102\* | Biology Laboratory I | 1(0-3-2)I |
| 315 106\* | Elementary Physics | 3(3-0-6) |
| 315 181\* | General Physics Laboratory I | 1(0-3-2) |
| 314 123\* | Calculus for Biological Science I | 3(3-0-6) |
| 000 101 | English for Communication | 3(3-0-6) |
| 000 130 | Information Literacy Skills | 3(3-0-6) |
| 000 153 | Local Wisdom | 3(3-0-6) |
| **Total credits** | **20** |
| **Cumulative credits** | **20** |

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| **First Year , 2nd Semester** | **Number of Credit** |
| **Course Number** | **Course Title** |
| 311 103\* | Biology II | 3(3-0-6) |
| 311 104\* | Biology Laboratory II | 1(0-3-2) |
| 312 108\* | Fundamental Chemistry | 3(3-0-6) |
| 312 106\* | General Chemistry Laboratory | 1(0-3-2) |
| 314 124\* | Calculus for Biological Science II | 3(3-0-6) |
| 319 101\* | Ecology | 3(3-0-6) |
| 319 102\* | Ecology Laboratory | 1(0-3-2) |
| 000 102 | English for Academic Purposes I | 3(3-0-6) |
| 000 155 | Civic Engagement | 3(3-0-6) |
| **Total credits** | **21** |
| **Cumulative credits** | **41** |

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| **Second Year , 1st Semester** | **Number of Credit** |
| **Course Number** | **Course Title** |
| 311 270\* | Invertebrates | 3(3-0-6) |
| 311 271\* | Invertebrates Laboratory | 1(0-3-2) |
| 312 112\* | Basic Organic Chemistry | 3(3-0-6) |
| 312 113\* | Basic Organic Chemistry Laboratory | 1(0-3-2) |
| 316 204\* | Elementary Statistics | 3(3-0-6) |
| 311 316\* | Plant Morphology | 3(3-0-6) |
| 311 317\* | Plant Morphology Laboratory | 1(0-3-2) |
| 000 103 | English for Academic Purposes II | 3(3-0-6) |
| 000 156 | Multiculturalism | 3(3-0-6) |
| **Total credits** | **21** |
| **Cumulative credits** | **62** |

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| **Second Year , 2nd Semester** | **Number of Credit** |
| **Course Number** | **Course Title** |
| 311 200\* | Research Methodology for Biological Science | 3(2-3-6) |
| 311 244\* | Elementary Genetics | 3(3-0-6) |
| 311 245\* | Elementary Genetics Laboratory | 1(0-3-2) |
| 312 242\* | Analytical Chemistry II | 2(2-0-4) |
| 312 243\* | Analytical Chemistry Laboratory II | 1(0-3-2) |
| 317 211\* | General Microbiology | 3(3-0-6) |
| 317 212\* | General Microbiology Laboratory | 1(0-3-2) |
| 000 168 | Critical Thinking and Problem Solving | 3(3-0-6) |
| xxx xxx | Free Electives | 3 |
| **Total credits** | **20** |
| **Cumulative credits** | **82** |

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| **Third Year , 1st Semester** | **Number of Credit** |
| **Course Number** | **Course Title** |
| 311 309\* | Instruments Usage in Biology | 2(1-3-4) |
| 311 380\* | Vertebrates | 3(3-0-6) |
| 311 381\* | Vertebrates Laboratory | 1(0-3-2) |
| 318 305\* | Biochemistry | 3(3-0-6) |
| 318 306\* | Biochemistry Laboratory | 1(0-3-2) |
| 050 108 | English for Sciences | 3(3-0-6) |
| 000 145 | Leadership and Management | 3(3-0-6) |
| xxx xxx | Free Electives | 3 |
| **Total credits** | **19** |
| **Cumulative credits** | **101** |

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| **Third Year , 2nd Semester** | **Number of Credit** |
| **Course Number** | **Course Title** |
| 311 300\* | Techniques in Biology | 3(1-6-5) |
| 311 310\* | Plant Physiology | 3(3-0-6) |
| 311 311\* | Plant Physiology Laboratory | 1(0-3-2) |
| 311 318\* | Plant Taxonomy | 3(3-0-6) |
| 311 319\* | Plant Taxonomy Laboratory | 1(0-3-2) |
| 311 370\* | Animal Physiology | 3(3-0-6) |
| 311 371\* | Animal Physiology Laboratory | 1(0-3-2) |
| 311 xxx\*\* | Elective in Biology | 3 |
| **Total credits** | **18** |
| **Cumulative credits** | **119** |

**Regular Plan**

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| **Fourth Year , 1st Semester** | **Number of Credit** |
| **Course Number** | **Course Title** |
| 311 304\* | Cell and Molecular Biology | 3(3-0-6) |
| 311 305\* | Cell and Molecular Biology Laboratory | 1(0-3-2) |
| 311 401\* | Developmental Biology | 3(3-0-6) |
| 311 402\* | Developmental Biology Laboratory | 1(0-3-2) |
| 311 407\* | Evolution | 3(3-0-6) |
| 311 491\* | Seminar in Biology | 1(0-3-2) |
| **Total credits** | **12** |
| **Cumulative credits** | **131** |

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| **Fourth Year , 2nd Semester** | **Number of Credit** |
| **Course Number** | **Course Title** |
| 311 494\* | Research Project in Biology | 3(0-9-5) |
| 311 xxx\*\* | Elective in Biology | 6 |
| **Total credits** | **9** |
| **Cumulative credits** | **140** |

**Co-operative Education Plan**

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| **Fourth Year , 1st Semester** | **Number of Credit** |
| **Course Number** | **Course Title** |
| 311 304\* | Cell and Molecular Biology | 3(3-0-6) |
| 311 305\* | Cell and Molecular Biology Laboratory | 1(0-3-2) |
| 311 401\* | Developmental Biology | 3(3-0-6) |
| 311 402\* | Developmental Biology Laboratory | 1(0-3-2) |
| 311 407\* | Evolution | 3(3-0-6) |
| 311 491\* | Seminar in Biology | 1(0-3-2) |
| 311 494\* | Research Project in Biology | 3(0-9-5) |
| **Total credits** | **15** |
| **Cumulative credits** | **134** |

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| **Fourth Year , 2nd Semester** | **Number of Credit** |
| **Course Number** | **Course Title** |
| 311 495\*\* | Cooperative Education in Biology | 6 |
| **Total credits** | **6** |
| **Cumulative credits** | **140** |

**Elective in Biology:** Student can select for 9 credits from following courses (or from other courses in other departments in KKU with authorization of the B.Sc. (Biology) committee)

 Course Credits

311 109 Biological Drawing 3(1-6-5)

311 201 Field Biology 2(2-0-4)

311 202 Field Biology Laboratory 1(0-3-2)

311 203 Scientific Media Production 2(1-3-4)

311 306 Plant and Animal Cell and Tissue Culture 2(2-0-4)

311 307 Plant and Animal Cell and Tissue Culture Laboratory 1(0-3-2)

311 308 Biodiversity and Conservation 2(2-0-4)

311 409 Paleobiology 3(3-0-6)

311 495 Cooperative Education in Biology 6 credits

311 382 Basic Immunobiology 3(3-0-6)

311 386 Animal Behavior 2(2-0-4)

311 387 Animal Behavior Laboratory 1(0-3-2)

311 388 Herpetology 3(3-0-6)

311 389 Herpetology Laboratory 1(0-3-2)

311 406 Marine Biology 3(3-0-6)

311 482 Histology 3(3-0-6)

311 483 Histology Laboratory 1(0-3-2)

311 484 Parasitology 3(3-0-6)

311 485 Parasitology Laboratory 1(0-3-2)

311 486 Introduction to Malacology 3(3-0-6)

311 487 Introduction to Malacology Laboratory 1(0-3-2)

311 488 Introduction to Protozoalogy 3(2-3-6)

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| 311 320 | Aquatic Plants | 2(2-0-4) |
| 311 321 | Aquatic Plants Laboratory | 1(0-3-2) |
| 311 322 | Plant Anatomy | 3(2-3-6) |
| 311 324 | Applied Botany | 3(3-0-6) |
| 311 416 | Biology of Cryptograms | 3(3-0-6) |
| 311 417 | Biology of Cryptograms Laboratory | 1(0-3-2) |
| 311 424 | Economic Botany | 3(3-0-6) |
| 311 348 | Human Genetics | 3(3-0-6) |
| 311 350 | Elementary Cytogenetics | 3(3-0-6) |
| 311 351 | Elementary Cytogenetics Laboratory | 1(0-3-2) |
| 311 404 | Molecular Biology | 3(3-0-6) |
| 311 408 | Plant Biotechnology | 3(3-0-6) |
| 311 454 | Plant and Animal Genetic Resources | 2(2-0-4) |
| 311 455 | Plant and Animal Genetic Resources Laboratory | 1(0-3-2) |
| 311 457 | Population Genetics | 3(3-0-6) |

**Program Lecturers**

1. Prof. Dr. Arunrat Chaveerach
2. Prof. Dr. La-orsri Sanoamuang
3. Prof. Dr. Pranom Chantaranothai
4. Assoc. Prof. Dr. Alongklod Tanomtong
5. Assoc. Prof. Dr. Manit Kosittrakun
6. Assoc. Prof. Dr. Narumon Sangpradub
7. Assoc. Prof. Dr. Pinich Wangsomnuk
8. Assoc. Prof. Dr. Piyada Theerakulpisut
9. Assoc. Prof. Dr. Sumontip Bunnag
10. Assoc. Prof. Dr. Wattana Pattanagul
11. Assist. Prof. Dr. Amornrat Prajaksood
12. Assist. Prof. Dr. Chantip Chuaynkern
13. Assist. Prof. Dr. La-iad Nakkrasae
14. Assist. Prof. Dr. Nathpapat Tantisuwichwong
15. Assist. Prof. Dr. Nisarat Tungpairojwong
16. Assist. Prof. Dr. Pimwadee Pornpongrungrueng
17. Assist. Prof. Dr. Pornpimol Jearranaiprepame
18. Assist. Prof. Dr. Praweena Maneerattanarungroj
19. Assist. Prof. Dr. Preeya Wangsomnuk
20. Assist. Prof. Dr. Somphong Sithiprom
21. Assist. Prof. Dr. Sujeephon Athibai
22. Assist. Prof. Dr. Wibhu Kutanan
23. Asst. Prof. Preeyawut Vatcharanon
24. Asst.Prof. Wuttipong Mahakham
25. Dr. Kanlaya Kong-ngern
26. Dr. Kanlaya Sriprateep
27. Dr. Monthira Monthatong
28. Dr. Sumpars Khunsook
29. Dr. Watanachai Lontom
30. Dr. Yodchaiy Chuaynkern
31. Mr. Jirapat Chunthapong