

FACULTY OF HEALTH SCIENCES  
Bachelor's Degree Programmes

**Bachelor of Science**  
• **Bioinformatics**

<b>Year I</b>	<b>Credits</b>
<b>Compulsory Major</b>	
CISC1001 Programming Science	3
HSCI1002 Introduction to Biological Sciences	3
HSCI1003 General and Clinical Biochemistry	3
<b>Languages and Skills*</b>	
English Language Courses or Free Elective	6
Chinese/Portuguese Language Course or Free Elective	3
<b>Community and Peer Education</b>	2
<b>General Education</b>	
GEA1000 Macao and Chinese Civilization (Area of Global Awareness)	3
GELH1000 Chinese Language and Culture (Area of Literature & Humanities)	3
GESB1000 Ethics, Values, Law and Society (Area of Society & Behaviour)	3
GEST1004 Quantitative Reasoning for Science and Technology (Area of Science & Technology)	3
<b>Total Credits:</b>	<b>32</b>

<b>Year II</b>		<b>Credits</b>
<b>Compulsory Major</b>		
CISC1002	Discrete Structures	3
CISC2003	Object Oriented Programming and Data Structures	3
CISC2006	Algorithm Design and Analysis	3
HSCI2000	Cell and Molecular Biology	3
HSCI2004	Genetics and Epigenetics	3
MATH1001	Linear Algebra I	3
<b>Required Elective</b>		<b>3</b>
<b>Languages and Skills*</b>		
	English Language Courses or Free Elective	3
CISC1000	Information Technology Fundamentals and Practices	3
<b>Community and Peer Education</b>		<b>1</b>
<b>General Education</b>		
	1 course from area of Global Awareness	3
<b>Free Elective</b>		<b>3</b>
<b>Total Credits:</b>		<b>34</b>

<b>Year III</b>		<b>Credits</b>
<b>Compulsory Major</b>		
CISC3000	Introduction to Database Systems	3
HSCI3003	Biostatistics and Experimental Design	3
HSCI3004	Genomics and Bioinformatics	3
HSCI3006	Advanced Bioinformatics	3
<b>Required Elective</b>		<b>9</b>
<b>General Education</b>		
	1 course from area of Society and Behaviour	3
	1 course from area of Science and Technology	3
<b>Free Elective</b>		<b>3</b>
<b>Total Credits:</b>		<b>30</b>

<b>Year IV</b>		<b>Credits</b>
<b>Compulsory Major</b>		
HSCI4000	Graduation Project I	3
HSCI4005	Graduation Project II	3
<b>Required Elective</b>		<b>9</b>
<b>General Education</b>		
	1 course from area of Literature and Humanities	3
<b>Free Elective</b>		<b>6</b>
<b>Total Credits:</b>		<b>24</b>
<b>GRAND TOTAL:</b>		<b>120</b>

<b>List of Required Elective Courses:</b>		<b>Credits</b>
CISC1004	Introduction to Computer Science	3
CISC1006	Probability and Statistics	3
CISC2002	Numerical Methods and Computation	3
CISC3003	Web Programming	3
CISC3005	Advanced Database Systems	3
CISC3011	Digital Image Processing	3
CISC3012	Artificial Intelligence	3
CISC3014	Information Retrieval and Web Search	3
CISC3015	Data and Information Visualization	3
CISC3018	Cloud Computing and Big Data Systems	3
CISC3023	Machine Learning	3
CISC3024	Pattern Recognition	3
HSCI3005	Genetics, Genomic and Bioinformatics Lab	1.5
HSCI4001	Cancer Biology and Therapy	3
HSCI4002	Stem Cell Biology and Regenerative Medicine	3
HSCI4006	Public Health	3
HSCI4007	Translational Medicine	3

\*Students who test out of some or all of the Languages and Skills course(s) are required to make up the credits by taking additional Free Elective(s). Please visit the Registry's webpage (<https://reg.um.edu.mo/current-students/curriculum-model/ug-curriculum-model/languages-and-skills/>) for more details about the test out criteria.