

BSc in Bioinformatics

	Credits
Liberal Education Program	44
<i>Core Courses:</i>	
WP 1010 LE Fundamentals of Argumentation	3
WP 1111 LE Argumentation Through Research	3
PH 1004 LE Character Education	3
HC 2300 Professional Communication or Equivalent	3
<i>Computer Literacy requirement:</i>	3
ITC 2088 Introduction to Programming	
<i>LE designated course in Natural Science with a lab:</i>	4
BI 1000 Introduction to Biology I	
<i>LE designated course in STEM:</i>	3
MA 2131 Calculus I or MA 2105 Applied Calculus *	
*The prerequisite MA 1024 Algebra and Trigonometry may be fulfilled through appropriate academic evaluation	
<i>LE designated course in Aesthetic Expression</i>	3
<i>LE designated courses in Human Experience in Context</i>	6
PH 3010 LE Ethics or	
PH 3036 LE Privacy, Policy, Law and Technology	
One additional course (except Philosophy courses)	
<i>LE designated courses in Society and Community</i>	6
SO 3007 Health and Society	
One additional course in Society and Community	
<i>LE designated course in Environment and Sustainability:</i>	4
BI 1101 Introduction to Biology II	
<i>LE designated course in The Business world</i>	3

Concentration Program

74

Mathematics

L4 - MA 2025 Applied Statistics for Sciences	3
L5 - MA 3232 Numerical Methods	3

Biology

L4 - BI 2222 Cell Biology	2
L5 - BMS 3220 Microbiology and Infectious Diseases	3
L5 - BI 3204 Human genetics	3
L5 - BI 3336 Molecular Biology	4

Physics

L4 - BI 2121 Biophysics	4
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Computing

L4 - ITC 2193 Operating Systems Concepts	3
L4 - ITC 2086 Computer System Architecture	3
L4 - ITC 2164 Fundamentals of Artificial Intelligence	3
L5 - ITC 3133 Data Mining and Big Data	3
L5 - ITC 3160 Fundamentals of RDBMS	3
L5 - ITC 3006 Mathematics for Computing	3
L6 - ITC 4458 High Performance Computing	3

Chemistry

L4 - CH 2015 General Chemistry	4
L5 - CH 3125 Organic and Biological Chemistry	3

Bioinformatics and Computational Biology

L4 - BIO 2323 Computational Biology Fundamentals	3
L6 - BIO 4442 R for Bioinformatics	4
L6 - BMS 4530 Bioinformatics and Health Information Systems	3
L6 - BIO 4141 Advanced topics in Bioinformatics	4
L6 - BIO 4244 Machine learning for Bioinformatics	3
L6 - BIO 4545 Capstone in Bioinformatics	4

Select one additional L6 module from the following:

L6 - ITC 4380 Artificial Intelligence Principles	3
L6 - BIO 4350 Biomedical genetics and genomics	3
L6 - BIO 4080 Internship in Bioinformatics	3
L6 - BMS 4546 Molecular Basis of Cancer	3
L6 - BMS 4547 Pure and applied Virology	3

One additional elective course

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You can select one of the following recommended modules to complete your elective requirements.

Recommended Computing Electives

L4 - ITC 2197 Object Oriented Programming Techniques	3
L4 - ITC 2205 Software Engineering Practices	3
L5 - ITC 3287 Advanced Object Oriented and Functional Programming	3
L5 - ITC 3213 Algorithms and Complexity	3
L6 - ITC 4380 Artificial Intelligence Principles	3

Recommended Bioinformatics Electives

L6 - BIO 4350 Biomedical genetics and genomics	3
L6 - BIO 4080 Internship in Bioinformatics	3

Recommended Biology Electives

L5 - BI 3215 Environmental Health	3
L5 - BI 3232 Molecular and Cellular Neurobiology	3
L6 - BMS 4546 Molecular Basis of Cancer	3
L6 - BMS 4547 Pure and applied Virology	3

TOTAL CREDITS: 121

Note:

L4 (Level 4 courses) – Begin with Level 4.

L5 (Level 5 courses) – Begin after 4 Level 4 courses have been completed.

L6 (Level 6 courses) – Begin as soon as you have completed at least four Level 5 courses (12 credits) and all L4 courses.