

# UNDERGRADUATE EMBEDDED CERTIFICATE IN GENETICS, GENOMICS, AND BIOINFORMATICS

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<sup>3</sup> The course fulfilling the Computer Science requirement cannot be applied to the Certificate; additional course(s) beyond the CS requirement may be taken toward the certificate

Biology majors are eligible to complete certificates within Biology electives and free electives.

All certificates are subject to the following requirements:

- Minimum 12 credits from the list of approved courses for each certificate
- Minimum 9 credits BIOS coursework
- Minimum 9 credits of 3xxx or higher coursework
- Maximum 6 credits of Special Topics
- Maximum 3 credits Transfer Credit
- Courses may not be double-counted toward more than one certificate or minor

Students declare a certificate, select and complete at least 12 credits that correspond to the desired certificate from the list below. Complete Certificate Applications must be submitted at least two weeks prior to the end of your graduating semester. The Certificate Application will be available on the Biology Majors Portal site in Canvas.

Code	Title	Credit Hours
Select 12 credits from the following: <sup>1</sup>		
BIOS 4015	Cancer Biology and Biotechnology	
BIOS 4150	Genomics and Applied Bioinformatics <sup>2</sup>	
BIOS 4505	Programming in Biological and Life Sciences	
BIOS 4510	Epigenetics, Stem Cells, and Development	
BIOS 4530	Human Evolutionary Genomics	
BIOS 4545	Genetics of Complex Human Traits and Diseases	
BIOS 4560	RNA Biology and Biotechnology	
BIOS 4607	Molecular Biology of Microbes: Disease, Nature, and Biotechnology	
BIOS 4803	Special Topics (Proteomics: Technology & Applications)	
BMED 4477	Biological Networks and Genomics	
CS 1301	Introduction to Computing <sup>3</sup>	
CS 1371	Computing for Engineers <sup>3</sup>	
CS 4400	Introduction to Database Systems	
CS 4710	Introduction to Computing Concepts for Bioinformatics	

<sup>1</sup> Students must select a minimum of 6 credits of BIOS courses. Non-BIOS courses from below may also be chosen. A maximum of 3 credits may be at the 1xxx or 2xxx level.

<sup>2</sup> The course fulfilling the Quantitative Requirement cannot be applied to the Certificate; the QR may be fulfilled by BIOS 3400 or BIOS 4401 for BIOS 4150 to be applied to the certificate