

ECOLOGICAL GENOMICS (GRADUATE CERTIFICATE)

<https://colsa.unh.edu/natural-resources-environment/program/graduate-certificate/ecological-genomics>

Description

The Graduate Certificate in Ecological Genomics at the University of New Hampshire is an interdisciplinary program to provide graduate level training that spans molecular to ecological scales. Students will be trained to study genome evolution in an ecological context using a systems-based approach, whereby genomic evolution is considered within an integrated system resulting from mechanisms operating across molecular, cellular, organismal, and ecological scales. Students within the program have the opportunity to build their five course certificate from a variety of course options from four broad disciplinary areas and one required seminar course. The flexibility of the program enables students with interdisciplinary interests to complement their current degrees in the life sciences broadly, and it is ideal for students with career interests in both the applied or basic sciences. This unique program also has an inter-institutional option, which affords the possibility for interested students to fulfill one or more of the requirements through offerings at the University of Maine.

Admission Requirement: Students should be enrolled in any graduate degree program in the College of Life Sciences and Agriculture. Otherwise, students must hold a life-science related baccalaureate degree from an accredited college or university, with a minimum GPA of 2.5 (or its equivalent) and achieve a minimum TOEFL score of 80, for those without a degree from an English-speaking institution. Courses taken at other institutions are not eligible to be transferred into the program.

Requirements

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This program of study requires five courses and a total of at least **13 credits**: one course selected from offerings in each of four disciplinary areas and a fifth required seminar course. All courses can be completed at the University of New Hampshire, as outlined below. Through a cooperative agreement between the Universities of New Hampshire and Maine, some courses at University of Maine may fulfill one or more of the requirements for this program. In these cases, the University of New Hampshire student will enroll in an appropriate University of New Hampshire special topics course (e.g. [NR 995](#) Investigations) and the content will be delivered remotely via a University of Maine course. Only select courses may be offered in this cross-institutional format. Contact the coordinator of the certificate program to get an up-to-date list of approved University of Maine courses.

Course Offerings and Requirements:

Code	Title	Credits
Genetics and Genomics		
Select one of the following:		
GEN 805	Population Genetics	3
GEN 815	Molecular Evolution	4
GEN 821	Comparative Genomics	4

GEN 872	Evolutionary Genetics of Plants	4
NR 908	Landscape Genetics	3
Cell Biology, Biochemistry, and Physiology		
Select one of the following:		
BCHM 802	Endocrinology	4
BCHM 850	Physical Biochemistry	3
BCHM 851 & BCHM 852	Principles of Biochemistry I and Principles of Biochemistry II	8
BCHM 863	Biochemistry of Cancer	4
BCHM 894	Protein Structure and Function	4
BIOL 801	Plant Physiology	4
BIOL 805	Molecular and Cellular Neurobiology	4
GEN 817	Molecular Microbiology	5
ZOOL 877	Neuroethology: The Neural Basis of Animal Behavior	4
Ecology and Evolution		
Select one of the following:		
BIOL 804	Plant-Microbe Interactions	3
BIOL 820	Plant-Animal Interactions	4
GEN 813	Microbial Ecology and Evolution	4
NR 834	Tropical Ecology	4
NR 965	Community Ecology	4
ZOOL 833	Behavioral Ecology	4
Bioinformatics and Computational Biology		
Select one of the following:		
GEN 811	Genomics and Bioinformatics	0 or 4
GEN 812	Programming for Bioinformatics	5
MCBS 913	Applied Bioinformatics	3