

Principles of Genetics

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Abstract

Many problems in modern biology are currently being addressed through the use of genetic information. This course provides the fundamentals required to understand the properties of a wide array of genetic markers and the breadth of application found for those markers throughout biology. For example, we will examine the utility of genetic information in the study of genome structure and function, the identification and breeding of economically important traits, the elucidation of basic properties of populations, and the solution of forensics problems. Another important component of the course is the historical perspective. Although the concept of a gene has changed from the breeding experiments of Mendel to the molecular biology of today, there exists a continuity that provides the conceptual basis for the analysis of modern molecular genetics. Finally, the development of both analytical and synthetic skills are emphasized in this course through problem sets and written exams.

General information

Course number Biology 305, Agronomy 305, Animal Science 305, and Horticulture 305

Class time Foster Hall 231 at 1:30–2:20 on Monday, Wednesday, and Friday.

Instructor Dr. Brook Milligan, 302 Foster Hall, 646-7980, brook@nmsu.edu. Office hours: Monday, Wednesday, Friday, 2:30–3:00 or by appointment.

Teaching Assistant Gloricelys Rivera, glorivel@nmsu.edu. Office hours: Tuesday and Thursday 1:30–3:00 (or by appointment) in the Biology Advising Center (Foster Hall 204). Please contact her via email to answer questions, to provide help, or to set up appointments for assistance.

Text The required text for this course is the following:

Brooker, R. J. 2009. *Genetics. Analysis and principles*. McGraw Hill, Boston, Massachusetts, third edition

In-class exams There will be two exams during this course prior to the final exam.

Final exam Monday, 3 May, 1:00–3:00

Additional readings Occasionally there may be required readings beyond those found within the textbook. Announcements of these will be added to the class schedule as appropriate, and instructions for accessing them will be made available here.

Problem sets A number of problems will be assigned throughout the semester. These will be collected periodically as noted on the class schedule. The purpose of working through these problems is to better solidify your understanding of the concepts covered in class. In particular, this should help you synthesize the material and think more critically about it.

Prerequisites Introductory Biology and Introductory Chemistry. Please see the instructor if you do not have these.

Computer resources I will make available to you on the World Wide Web (<http://web.nmsu.edu/~brook/courses/genetics/>) versions of various documents associated with the course. Wherever possible I will make available not only web-browsable versions, but also PostScript (*.ps) and Acrobat (*.pdf) versions. The latter may be more convenient if you wish to download a copy and print it, rather than view it online. These documents will include such things as the most recent version of the complete syllabus, the course schedule, lecture notes, readings, and other supplemental material.

References

Brooker, R. J. 2009. *Genetics. Analysis and principles*. McGraw Hill, Boston, Massachusetts, third edition.