

Class Focus

Norm Weeden – BIOB 377

Practical Genetics



What is cancer? What is genetic diversity—and what is the best way to measure it in a species? What will I learn about myself if I get my genome sequenced? What is the most dangerous environment mutagen I am likely to encounter? Why don't I ever see a male calico cat? What genes make a leaf, or a leg—and how did scientists make those flies with a leg coming out of their head? All these are questions we address in Practical Genetics. The goal of this course is to have you develop a practical knowledge of genetics, allowing you to perform successfully in roles requiring a general

knowledge of biology, as well as to assess the importance and accuracy of genetic information/interpretations presented to you in newspapers or magazines, people in leadership positions, or your physician.

The course primarily consists of a series of lectures/discussions that are augmented by readings and problems from a standard genetics text (Concepts of Genetics by R.J. Brooker has been recommended for the last two years). The course is divided into three parts, the first third being transmission genetics (how traits are passed on from one generation to the next). We then take up DNA structure and how that molecule is amazingly for its function. Finally, in the last third of the course we apply what we have learned to current issues or aspects of life that turn out to be intimately associated with fundamental genetic principles. Although there is no laboratory specified for the course, you will also obtain hands-on experience performing the same experiments Mendel did and analyzing your own data. Concepts such as segregation, linkage, meiosis and recombination will become second nature to you. In addition, you will become MSU's expert on the genetics of a genus of your choosing.

This course is taught each Spring Semester, and for many majors it is interchangeable with BIOB 375 (General Genetics) and has the same pre-requisites (a 100 or 200 level course in cell and molecular biology). However, the class size of BIOB 377 is about 30, while that for BIOB 375 is over 100. I do get to know every student in my class, and we do have time to discuss some of the ethical and social issues associated with DNA genotyping and other aspects of this rapidly developing field. I look forward to seeing you next spring.