

Guided Reading on Plant Breeding and Cytogenetics 1-2-2173 2CREDITS

Prof. Noemi Tel-Zur

Lectures: 2 hr/week.

Course contents

This course will provide the basic knowledge of plant breeding and cytogenetics including cell cycle, cell division, mitosis, meiosis and the genetic control of meiosis; chromosome structure and functions, karyotype analysis, structural chromosome changes, polyploidy, genome analysis (FISH), flow cytometry, pollen analysis and production of wide hybrids. Student will learn the principles of plant breeding of both sexually and vegetatively propagated crops, conservation and utilization of natural genetic variation, creation of genetic variation by classical and molecular methods. In addition, this course aims to explain the significance of species and interspecies diversity of plants. The students will be introduced to the basic principles of genetic improvement of plants and will learn how to use the genetic potential by proper seed management.

Recommended reading

1. Sybenga, J. *Cytogenetics in Plant Breeding*. Berlin: Springer-Verlag, 1992.
2. Clark, M.S., and W.J. Wall. *Chromosomes: The Complex Code*. London, Chapman and Hall, 1996.
3. Sharma A. *Plant Chromosomes: Analysis, Manipulation and Engineering*. CRC Press, 1999.
4. Singh, R.J. *Plant Cytogenetics*. Second edition, Boca Raton, CRC Press, 2002.