

Measurable student learning outcomes

1. Describe the major concepts in plant genetics: sources of genetic variation, mechanisms of reproduction, transmission of genetic information, and alternative genome organizations.
2. Identify causal DNA, RNA, and protein polymorphisms that lead to phenotypic variation.
3. Calculate probabilities of inheritance of specific alleles and allele combinations given raw data.
4. Identify the mechanisms that lead to sexual differentiation in plants and the consequences that these mechanisms have on population structure, genetic diversity, and strategies for directed evolution.
5. Choose appropriate molecular breeding strategies for meeting specific breeding and genetics objectives.
6. Diagnose inheritance patterns and the underlying genetic mechanisms.
7. Interpret structural and regulatory differences and use this information to choose appropriate molecular breeding technologies.
8. Organize information from more than one viewpoint on controversial issues relating to non-sexual gene transfer and gene flow.