

Course title: Forensic Botany

Assessment	
Maximum marks	50
Continuous Internal Assessment (CIA)	12.5
Mid Semester Exam (MSE)	12.5
End Semester Exam (ESE)	25
Passing Marks	25

Course objectives

This course will help students to have a overview of forensic science with an impetus on on forensic botany with primary emphasis on methods other than DNA analysis. Students will be expected to read case studies and other works from the forensic literature. This course will also help students to integrate results of basic science with the forensic sciences in a scientific way.

Theory**Unit 1: Introduction to forensic botany**

Botanical evidence in legal investigations; legal plant definition; types of plants; non-plant groups traditionally studied by botanists; plant habitats and associations; plant characteristics/plant morphology; basic plant characteristics for the forensic investigator; habit; plant dispersal.

Unit 2: Evidence collection and analytical techniques

Initial crime scene notation; evidence collection; storage; documentation of botanical evidence; analysis of botanical evidences; types of cases; evidence analysis; laboratory report; transportation of botanical evidence; evidence retention and disposition; step-wise method for the collection of botanical evidence; crime scene data; habitat documentation; scene location; collection information needed for each botanical; types of samples and collection for DNA analyses; uses of genetic data; genotyping methods; microscopes and microscopic botanical structures relevant to forensic botany; importance of reference

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collections in microscopic analysis; preparation and documentation of specimen evidence for microscopic examination

Unit 3: Sources for forensic plant evidence

Plant taxonomy: plant collection & identification; plant anatomy-Types of plants; plant cell types; plant cells and time of death; plant ecology- Ecological landscapes; climate and weather data palynology: Biological features of pollen; the use of pollen for non-forensic work; application of algal evidence in forensic investigations; collection and processing of algal evidence in forensic investigations

Suggested readings:

1. Blum, D., 2011. *The Poisoner's Handbook*. Penguin Books, New York.
2. Bock, J.H., Norris, D.O. and Lane, M.A., 1988. *Identifying Plant Food Cells in Gastric Contents for Use in Forensic Investigations: A Laboratory Manual*. US Department of Justice, National Institute of Justice.
3. Carlier, J., Guitton, J., Romeuf, L., Bévalot, F., Boyer, B., Fanton, L. and Gaillard, Y., 2014. Screening approach by ultra-high performance liquid chromatography–tandem mass spectrometry for the blood quantification of thirty-four toxic principles of plant origin. Application to forensic toxicology. *Journal of Chromatography B*, 975, pp.65-76.
4. Gallagher, S., August 10, 2004. Andre Noble, Filmmaker Blog, <http://www.filmmakermagazine.com/blog/2004/08/andre-noble;php/#;VQtKzWYWFFU>.
5. Jhala, C.I. and Jhala, K.N., 2012. The Hippocratic oath: a comparative analysis of the ancient text's relevance to American and Indian modern medicine. *Indian Journal of Pathology & Microbiology*, 55(3), pp.279-282.
6. Levine, M., Ruha, A.M., Graeme, K., Brooks, D.E., Canning, J. and Curry, S.C., 2011. Toxicology in the ICU: part 3: natural toxins. *Chest*, 140(5), pp.1357-1370.
7. Lewis, W.H. and Elvin-Lewis, M.P., 2003. *Medical Botany: Plants Affecting Human Health*. John Wiley & Sons, New York.
8. Magner, L.N., 1992. *A History of Medicine*. Marcel Dekker Inc., New York.