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| Semester: | 05 | | |
| Course Code: | ZOOL 41722 | | |
| Course Name: | Histological and Museum Techniques | | |
| Credit Value: | 02 | | |
| Status: | Compulsory | | |
| Pre-requisites: | ZOOL 12711 & ZOOL 21711 | | |
| Co-requisites: | None | | |
| Hourly Breakdown: | Theory | Practical | Independent Learning |
| | 10 | 60 | 30 |

Intended Learning Outcomes:

After completion of this course unit, the student will be able to:

1. explain basic techniques used in histological preparations of animal tissues,
2. discuss preventive/remedial measures for the technical issues that may be encountered in the tissue preparation process,
3. explain basic procedures for preparation of museum exhibits of different animal groups,
4. discuss advantages and limitations of different preservation techniques for preparation of museum exhibits of animals,
5. prepare microscopic slides of animal tissues/organs for histological studies using appropriate techniques/procedures, and
6. use suitable preservation and mounting techniques for preparation of museum exhibits of animals.

Course Content:

Histological techniques

Overview of practical applications of histology. Techniques/procedures for preparation of animal tissues/organs for histology: fixation, dehydration, clearing, infiltration, embedding, section cutting, staining and mounting. Advantages and limitations of different fixatives. Selection of appropriate fixatives and embedding materials. Potential challenges in the process of sectioning: preventive and remedial measures. Different staining methods and their most appropriate use for animal tissues.

Practical sessions on stepwise procedures for preparing microscopic slides of animal tissues/organs for histological studies using appropriate techniques/procedures.

Museum techniques

Basic steps in museum techniques in relation to animal exhibits. Fixatives and mounting media. Preservation and mounting procedures for selected invertebrate and vertebrate museum specimens. Advantages and disadvantages of different preservation/fixation techniques. Taxidermy of fish, birds and mammals. Skeletal preparations of selected vertebrates. Impact of environmental factors on the museum specimen exhibits and precautionary measures.

Practical sessions on preparation of museum exhibits of selected invertebrates and vertebrates using proper preservation and mounting techniques.

Teaching /Learning Methods:

A combination of lectures, laboratory practical sessions, self-studies, individual practical assignments and group practical assignment.

Assessment Strategy:

Continuous assessment and end of semester examination. Percentage given for each sub-component indicates the percent contribution to the final marks.

| Continuous Assessment 40 % | Final Assessment 60 % | | |
|---------------------------------------|--------------------------|-----------|-------|
| Details: | Theory | Practical | Other |
| Individual practical assignments 25 % | 30 % | 30 % | - |
| Group practical assignments 15 % | | | |

Recommended Readings:

1. Suvarna, S. K., C. Layton, & J. D. Bancroft (2019). Bancroft's Theory and Practice of Histological Techniques. 8th edition. Elsevier.
2. Mahony, R. (1973). Laboratory Techniques in Zoology. Butterworths, London.
3. Baneraft, A. & A. Stevens (1990). Theory and Practice of Histological Techniques. Churchill Longstone, Edinborough.
4. Grantz, G. J. (1969). Home Book of Taxidermy and Tanning. Stackpole Books.