Principles and methods of systematic zoology

Year 3.   Summer semester   lecture 40 hours/semester

4 credits

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Annotation

Basic concepts theoretical approaches and methods of comparative biology, taxonomy and phylogenetics relevant to higher classification and species from a viewpoint of phylogenetic systematics. Obligatory for all specializations of Zoology.

Syllabus

1. Basic terms and concepts

2. Character, its weighting and polarization

2.1. Methods *a priori* and *a posteriori*

2.2. Homology and homoplasy

2.3. Plesiomorphy a apomorphy

2.4. Outgroup comparison

2.5. Coding of character states

3.Taxa

3.1. Monophylum, paraphyletic and polyphyletic taxa

3.2. Kinds and composition of monophyla

3.3. Objective paraphyly, problem of the stem-line and ancestor

3.4. Phenetics, eclectic classification, phylogenetic systematics, transformed cladistics

4. Cladogram and its construction

4.1. Dendrograms, their kinds and components

4.2. Cladogram accorong to hennigian argumentation

4.3. Cladogram in numerical phyletics

4.4. Consensual cladograms

5. Molecular phylogenetics and comprehensive methods

6. Phylogenetic hypothesis and classification

7. Species and speciation

7.1. Alternatice conceptions of species

7.2. Special cases of speciation (uniparental species, klepton)

7.3. Cryptic species

7.4. Onfraspecific taxa

7.5. Hybrid zones

8. Intraspecific variability and its causes

9. Usage of zoological literature and auxiliary sources, search for references

1O. Preparing manuscript for publication

11. Zoological nomenclature

PRACTICAL

Search for references and construction of cladograms using electronic media

References

Mayr E. & Ashlock P.T. 1991: Prociples of Systematic Zoology. 2nd Ed. McGraw Hill, New York.

Kitching I.J. et al. 1998: Cladistics. 2nd Rd. Oxford Univ. Press, Oxford.

Schuh R.T. 2000: Biological Systematics. Cornell Univ. Press. Ithaca (N.Y.).