

Systematics	
Course Code	DIC 8009
Credits	Three (lectures: 3 hr per week)
Organizers	Chung-Ping Lin
Lecturers	Chung-Ping Lin (treehopper@ntnu.edu.tw)
Time	14:10-17:00, Monday
Place	C302, NTNU (Gungguan Campus)
Prerequisites	Intro Biology, Genetics, Evolution
Description	This is a topical course, focusing on understanding the basic concepts, principles and skills of systematics, how to design a feasible study plan, set up experiments and obtain data, and how to analyze data. It will also include lectures on how current methodologies and techniques are applied to solve systematic problems.
Objectives	The major objectives of this course are to provide basic background in systematics and to deliver the most updated knowledge, skills and applications of systematics to ecological and evolutionary problems. 1. To have the professional knowledge required for designing and conducting research in systematics. 2. To be able to analyze experimental data rigorously, draw appropriate conclusions and publish results in scientific journals.
Grade	Assignments 50% Class discussion 20% Class report/presentation 30%
Reference	Textbook: 1. The Phylogenetic Handbook by Lemey et al, 2009, 2 nd ed., Cambridge. Available at the course web page (Moodle). 2. Analysis of Phylogenetics and Evolution with R (Use R!) by Emmanuel Paradis, 2012, 2 nd ed., Springer. eTextbook available at Academia Sinica: http://link.springer.com/book/10.1007%2F978-1-4614-1743-9 Research and review papers are the major reading materials for this course. Some chapters in related textbooks would be assigned as reading materials, which would be announced by lecturers prior to class.

Date	Topic
9/14	Week 1 Introduction
9/21	Week 2 Systematics

9/28	Week 3 Holiday (adjusted)
10/5	Week 4 Characters
10/12	Week 5 Homology
10/19	Week 6 Tree basics
10/26	Week 7 Parsimony
11/2	Week 8 Likelihood
11/9	Week 9 Midterm exam
11/16	Week 10 No class (instructor's field works)
11/23	Week 11 Bayesian
11/30	Week 12 Character evolution
12/7	Week 13 Gene/Species trees
12/14	Week 14 Phylogeography
12/21	Week 15 Speciation
12/28	Week 16 Project presentation I
1/4	Week 17 Project presentation II
1/11	Week 18 Final exam