## Course Syllabus

**1. Program of Study** Bachelor of Science (Biological Science)
Bachelor of Science (Environment)
**Faculty/Institute/College** Mahidol University International College

**2. Course Code** ICBI 314
**Course Title** Tropical Ecology

**3. Number of Credits** 4 (3-2-7) (Lecture/lab/Self-study)

**4. Prerequisite *(s)*** none

**5. Type of Course** Elective

**6. Trimester / Academic Year**
1st trimester /every academic year

**7. Course Condition**
Number of students is 20-30.

**8. Course Description**
The tropical environment; tropical rainforests and biodiversity; tropical streams, rivers, floodplains and estuaries; tropical lakes; wetlands; mangroves; sea grasses; coral reefs; biogeography; practical exercises and field trips included.

**9. Course Objective *(s)***
By the end of the course students should be able to describe and explain:
1. the climatic conditions of the tropics
2. the types of grasslands and savanna
3. the importance of and environmental factors affecting photosynthesis
4. the effects of grazing/predation
5. tropical lakes, energy flow and biogeochemical cycling
6. tropical streams and rivers – types of streams/rivers
7. tropical floodplains – the Mekong river
8. the River Continuum Concept (RCC) and the Flood Pulse Concept (FPC)
9. tropical estuaries – types and productivity
10. wetlands – types and importance
11. the importance of tropical rainforests in terms of biodiversity
12. mangroves and seagrasses – their importance and susceptibility to human influence
13. coral reefs – biology, ecology and management
14. island biogeography – evolution, extinctions and biodiversity

**10. Course Outline**

| Week | Topics/Seminar | Hours | | | Instructor |
|---|---|---|---|---|---|
| | | Lecture | Lab | Self-study | |
| 1 | The tropical climate; biogeographical regions; plate tectonics | 3 | 2 | 7 | Dr Wayne Phillips |

| | | | | | |
|---|---|---|---|---|---|
| 2 | Grasslands and savannah | 3 | 2 | 7 | Dr Wayne Phillips |
| 3 | Tropical Lakes | 3 | 2 | 7 | Dr Wayne Phillips |
| 4 | Tropical streams and rivers | 3 | 2 | 7 | Dr Wayne Phillips |
| 5 | Tropical estuaries | 3 | 2 | 7 | Dr Wayne Phillips |
| 6 | MIDTERM EXAM | 3 | | | Dr Wayne Phillips |
| 7 | Wetlands | 3 | 2 | 7 | Dr Wayne Phillips |
| 8 | Tropical rainforests | 3 | 2 | 7 | Dr Wayne Phillips |
| 9 | Mangroves and seagrasses | 3 | 2 | 7 | Dr Wayne Phillips |
| 10 | Coral reefs | 3 | 2 | 7 | Dr Wayne Phillips |
| 11 | Island biogeography Biodiversity | 3 | 2 | 7 | Dr Wayne Phillips |
| **FINAL EXAMINATION** | | | | | |
| | **Total** | 33 | 22 | 77 | |

**11. Teaching Method *(s)***

Lectures, in-class practical exercises, discussion, self-study and field trip with practical exercises

**12. Teaching Media**

1. Powerpoint Presentations
2. Texts and teaching materials
3. Field exercises.

**13. Measurement and Evaluation of Student Achievement**

Student achievement is measured and evaluated by

13.1 The ability to describe and explain about the climatic conditions of the tropics; the types of grasslands and savanna; the importance of and environmental factors affecting photosynthesis; the effects of grazing/predation; tropical lakes, energy flow and biogeochemical cycling.

13.2 The ability to describe and explain about the effects of grazing/predation; tropical streams and rivers; tropical floodplains.

13.3 The ability to describe and explain about tropical estuaries; wetlands; the importance of tropical rainforests in terms of biodiversity

13.4 The ability to describe and explain about mangroves and seagrasses – their importance and susceptibility to human influence

13.5 The ability to describe and explain about coral reefs – biology, ecology and management

13.6 The ability to describe and explain about island biogeography – evolution, extinctions and biodiversity

Student's achievement will be graded according to the college and university standard using the symbols: A, B+, B, C+, C, D+, D and F. Minimal passing level is 60%. Student who earns 85% up will have Grade A, 80-84% Grade B+ , 75-79% Grade B, 70-74% Grade C+, 65-69% Grade C, 60-64% Grade D+, 55-59% D, less than 55 Grade F. Students must attend at least 80% of the total class hours of this course.

| Ratio of mark | |
|---|---|
| Field trips report | 20% |
| Assignments (x4) | 20% |
| Midterm Exam | 30% |
| Final Exam | 30% |

**14. Course evaluation**

14.1 Students' achievement as indicated in number 13 above.

14.2 Students' satisfaction towards teaching and learning of the course using questionnaires.

**15. Reference *(s)***

Osborne, P.L. Tropical ecosystems and ecological concepts. USA. Cambridge Press. 2000.

Richards, P.W. The tropical rain forest: an ecological study. USA. Cambridge Press. 1996.

Spalding, M.D., Green, E.P. and Ravillious, C. World atlas of coral reefs. USA. University of California Press. 2001.

Additional readings set by instructor

**16. Instructor *(s)***

Dr Wayne Phillips

**17. Course Coordinator**

Dr Wayne Phillips