Course Syllabus

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

2. **Course Code**   ICBI 320
   Course Title   Population and Community 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**
   Trimester 2/every academic year

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

8. **Course Description**
   Introduction to population growth and dynamics of age-structured populations, population control, theory of competition, herbivory, predation, community, trophic structure and control, community diversity, theories of evolution and maintenance of diversity; field trips, sampling and modeling exercises and experiments included.

9. **Course Objective** *(s)*
   By the end of the course students should be able to describe and explain:
   1. The structure and functioning of populations and communities
   2. How to estimate population size and density using mark and release methods
   3. How populations are spaced in the environment
   4. The factors influencing population growth
   5. The different interactions within and between populations.

10. **Course Outline**

week	Topics/Seminar	Hours			
		Lecture	Lab	Self-study	Instructor
1	Introductory concepts - What is population and community ecology?	3	2	7	Dr Wayne Phillips
2	Estimating population density and size	3	2	7	
3	Spatial distribution of organisms	3	2	7	
4	Population Growth - Density	3	2	7	

	dependent and independent growth				
5	Life Tables Mid-term exam	3	2	7	
6	Population dynamics – Stability and disturbance	3	2	7	
7	Interactions between species – Competition	3	2	7	
8	Interactions between species – Predator – prey	3	2	7	
9	Interactions between species – Host – parasites	3	2	7	
10	Interactions between species – Disease and pathogens	3	2	7	
11	Evolution and biodiversity	3	2	7	
FINAL EXAMINATION					
	Total	33	22	77	

11. Teaching Method *(s)*
1. Lecture
2. Suggested readings
3. Discussion in class
4. Field trips, modeling and practical exercises

12. Teaching Media
1. Powerpoint Presentations
2. Texts and teaching materials

13. Measurement and Evaluation of Student Achievement
Student achievement is measured and evaluated by
13.1   The ability to describe the structure and functioning of populations and communities.
13.2   The ability to explain how to estimate population size and density using mark and release methods.
13.3   The ability to explain how populations are spaced in the environment.
13.4   The ability to describe the factors influencing population growth
13.5   The ability to describe the different interactions within and between populations.

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.

Field trip report   10%
Practical exercises (x3)   30%
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)*

Vandermeer, J.H. and Goldberg, D.E. Population ecology: First principles. USA. Princeton Uni. Press. 2003.

Morin, P.J. Community ecology. UK. Blackwell Science. 1999.

Turchin, P. Complex population dynamics. USA. Princeton Uni. Press. 2003.

Additional readings set by instructor

16.Instructor *(s)*

Dr Wayne Phillips

17.Course Coordinator

Dr Wayne Phillips