  Spring 2005

**Description:**
From microbes to whales, the molecular techniques recently introduced in Oceanography have profoundly influenced our way of studying marine biodiversity, ecology, and evolution. This course will provide a general survey of the various molecular tools used in the study of the Ocean.
A wide range of newly developed scientific fields, such as phylogenetics, phylogeography, genomics, population genetics, or molecular ecology, will be introduced. After an introduction of their theoretical principles, examples of applications to address basic questions in marine biology will be presented, and key scientific papers in each of those fields will be discussed.
Six computer-lab sessions will be organized to play with real data-sets and learn how to use the latest softwares in DNA sequence analyses and molecular phylogenetics.

**Instructor:** Colomban de Vargas, IMCS room 303C, Phone: 732 932 6555 ext. 236
e-mail: vargas@imcs.rutgers.edu

**Lecture Time:** TF3: Tuesday-Friday, 11:30-12:50

**No recitation, but office hours:** Tuesday and Friday afternoon: 2:30-5:30pm

**Room:** Ruth Adams Building, room 104 (RAB104)

**Prerequisites:** General Biology: 01:119:101 or Marine Sciences: 01:628:200
  Basic Statistics for Research: 01:960:401
  01:447:380 Genetics (4) or 11:776:305 Plant Genetics (4)

**Maximum # of students:** no Limit

**Permission #:** Required


**Reading Material:** Distributed during the class

**Grading:**
- Attendance 10 %
- Paper oral presentation 1 20 %
- Mid-term paper 2 40 %
- Final 30%

1: This will include the oral presentation of a seminal scientific paper in the field of molecular ecology, as well as the conduct of a debate around this paper.
2: A 10 to 20 pages referenced review on a subject from a proposed list.