

PHYSICAL MARINE SCIENCE (PHMS)

PHMS 250 - Introduction to Marine Sciences 4 Credits

Prerequisite(s): GNED 199, WRIT 105 or HONP 100 may be taken as a prerequisite or corequisite. Special fee. A general study of the marine sciences, including origin and evolution of the oceans, physical and chemical properties of seawater, marine life, oceanic circulation, atmospheric-ocean exchange and other processes that take place in the oceans. This course also deals with marine resources and human interaction with the marine environment. Field trips required. May be taught off-campus at the NJ Marine Sciences Consortium in the summer. Meets Gen Ed 2002 - Natural Science Laboratory. Cross listed with Earth and Environmental Studies, EAES 250. Previous course PHMS 210 effective through Spring 2012. 3 hours lecture, 3 hours lab.

PHMS 350 - Oceanography 3 Credits

Prerequisite(s): EAES 240, EAES 250, PHMS 250 or departmental approval. Study of the physical and chemical properties of sea water, oceanic circulation, waves and tides, and estuarine and shoreline processes. May be taught off-campus at the NJ Marine Sciences Consortium in the summer. Cross listed with Earth and Environmental Studies, EAES 350. Previous course PHMS 310 effective through Spring 2012. 3 hours lecture.

PHMS 422 - Biology of Marine Plankton 2 Credits

Prerequisite(s): Departmental approval. A study of the marine phytoplankton and zooplankton, their collection, analysis and interpretation. Their role in the ecosystem will be stressed as will be their distribution, particularly those of the near shore and estuarine environment. Field trips will be made to coastal New Jersey. Offered at the New Jersey Marine Sciences Consortium. 1 hour lecture, 3 hours lab.

PHMS 450 - Marine Botany 4 Credits

Prerequisite(s): Departmental approval. An introduction to the structure, systematics, physiology and ecology of algae and metaphyta of the marine environment. Emphasis will be placed on the flora of the estuary and tidal marsh. Biology of the associated phytoplankton will be studied. Also offered at the site of New Jersey Marine Sciences Consortium. 3 hours lecture, 3 hours lab.

PHMS 451 - Coastal Marine Geology 4 Credits

Prerequisite(s): EAES 340, EAES 350, PHMS 350, AQUA 351, EAES 441 or departmental approval. A study of the geologic processes concerned with the supra-, inter-, and sub-tidal areas of the near shore environment. Field studies will emphasize the dynamics of erosion and deposition as well as general sedimentation associated with modification of barrier beaches and other land forms of the New Jersey shoreline. Offered at the New Jersey Marine Sciences Consortium. Cross listed with Earth and Environmental Studies, EAES 451. Previous course PHMS 481 effective through Spring 2012. 4 hours lecture.

PHMS 452 - Dynamic Beach Processes 2 Credits

Prerequisite(s): EAES 340, EAES 350, PHMS 350, AQUA 351, EAES 441 or departmental approval. Study of the processes and forces involved in material transport within the beach zone. Offered at the New Jersey Marine Sciences Consortium. Cross listed with Earth and Environmental Studies, EAES 452. Previous course PHMS 483 effective through Spring 2012. 1 hour lecture, 3 hours lab.

PHMS 453 - Tidal Marsh Sedimentations 2 Credits

Prerequisite(s): EAES 340, EAES 350, PHMS 350, AQUA 351, EAES 441 or departmental approval. Processes involved in sediment transport and deposition within the marsh system. Geologic history of tidal marshes. Offered at the New Jersey Marine Sciences Consortium. Cross listed with Earth and Environmental Studies, EAES 453. Previous course PHMS 484 effective through Spring 2012. 1 hour lecture, 3 hours lab.

PHMS 456 - Physical Oceanography 4 Credits

Prerequisite(s): EAES 350, PHMS 350, AQUA 351 or departmental approval. A survey of modern oceanography and its methods including characteristics of sea water, theories of ocean currents and, in general, applications of biological, geological, physical, meteorological and engineering sciences to the study of the oceans. Offered at the site of the New Jersey Marine Sciences Consortium. Cross listed with Earth and Environmental Studies, EAES 456. Previous course PHMS 411 effective through Spring 2012. 3 hours lecture, 3 hours lab.

PHMS 458 - Marine Science Education 2 Credits

Prerequisite(s): EAES 350, PHMS 350, AQUA 351 or departmental approval. Selected field experiences and laboratory methods utilized to develop resources from the marine environment to be used in teaching the various disciplines. Offered at the site of the New Jersey Marine Sciences Consortium. Cross listed with Earth and Environmental Studies, EAES 458. Previous course PHMS 460 effective through Spring 2012. 1 hour lecture, 1 hour lab.

PHMS 459 - Independent Study in the Marine Sciences 1-4 Credits

Prerequisite(s): Departmental approval. Individual research projects will be selected under the guidance of a professor associated with the consortium. Open only to those advanced undergraduate students who have indicated a potential for original thinking. Offered at the New Jersey Marine Sciences Consortium. May be repeated three times for a maximum of 10.0 credits as long as the topic is different. Cross listed with Earth and Environmental Studies, EAES 459. Previous course PHMS 498 effective through Spring 2012. Independent Study in the Marine Sciences.

PHMS 490 - Field Methods in the Marine Sciences 4 Credits

Prerequisite(s): Departmental approval. The application and techniques of marine sampling, including those of biology, chemistry, geology, meteorology and physics. The nature and role of various pieces of sampling equipment. Field experience at the New Jersey Marine Sciences Consortium. 2 hours lecture, 4 hours lab.

PHMS 551 - Coastal Geomorphology 4 Credits

Prerequisite(s): Matriculation in an Earth and Environmental Studies or MS Biology graduate program and equivalent of EAES 200 or departmental approval. Special fee. Coastlines and their evolution; processes and materials of the coastal zone; shore zone hydrodynamics and sedimentation: beach and barrier systems with special emphasis on the New Jersey shoreline. Offered at the site of the New Jersey Marine Sciences Consortium. Cross listed with Earth and Environmental Studies, EAES 551. Previous course PHMS 581 effective through Spring 2012. 3 hours lecture, 2 hours lab.

PHMS 559 - Special Problems in the Marine Sciences 1-4 Credits

Prerequisite(s): Departmental approval. An opportunity for the qualified graduate student to do research in a field of marine science selected under the guidance of a professor. Open only to graduate students who have indicated a potential for original thinking. Also offered at the site of the New Jersey Marine Sciences Consortium. May be repeated three times for a maximum of 10.0 credits as long as the topic is different. Cross listed with Earth and Environmental Studies, EAES 559. Previous course PHMS 598 effective through Spring 2012. 3 hours lecture, 2 hours lab.

PHMS 564 - Benthic Ecology 4 Credits

Prerequisite(s): Departmental approval. Community structure, trophic dynamics species diversity and distribution of bottom dwelling organisms in relationship to their environment. Lectures, lab work, field investigation of marine benthos. Offered at N.J. Marine Sciences Consortium. 1 hour lecture, 6 hours lab.

PHMS 565 - Tidal Marsh Ecology 4 Credits

Prerequisite(s): Departmental approval. Salt marsh development and physiography: community structure, energetics, and interrelationships. The role of salt marshes in estuarine and marine systems. The impact of man on the marsh. Offered at N.J. Marine Sciences Consortium. 3 hours lecture, 3 hours lab.

PHMS 566 - Ecology of the Estuary 4 Credits

Prerequisite(s): Departmental approval. Emphasis is placed upon the important biotic, chemical and physical parameters of New Jersey's estuaries. An underlying theme is the evolution and successional trends of estuarine communities. Ecology of individual communities is studied by field trips to Delaware Bay shore and to some Atlantic coastbays, marshes and off-shore barrier islands. Also offered at the N.J. Marine Sciences Consortium. 3 hours lecture, 3 hours lab.