FISHERY SCIENCE (11:628:309, 3 credits)

Instructor
Professor Olaf Jensen

Prerequisites
Permission of the instructor. Requires students have some familiarity with algebra and a willingness to engage in basic mathematical modeling. General biology highly recommended and a course in ecology preferred.

Course Materials
Additional required readings available through course website

Topics
Fish populations and connectivity
Predator-prey interactions
Invasive species
Biomass dynamic models
Somatic growth
Stock-recruitment relationships
Life history theory and tradeoffs
Bioenergetics
Ecosystem models
Fisheries economics
Fishery management approaches
Seafood from a consumer perspective
Hatchery supplementation
Climate change and shifting fisheries
Fisheries governance from local to international
The future of fisheries

Course Learning Goals and Assessment
The Learning Goals for the Marine Science Program are posted on our website at http://marine.rutgers.edu/main/academics/undergraduate/program-description. The learning goals for this course apply to Program Learning Goal 1 (master the basic biological, chemical, physical, and geological principles of marine science), Goal 2 (analyze and interpret contemporary oceanographic datasets), Goal 3 (show evidence of scientific literacy, and communicate the information effectively both orally and in writing), and Goal 5 (evaluate contemporary global issues and the ethics of how the ocean’s resources are used).

Students completing this course will be able to:
Explain fisheries terms such length limits, ITQs, and catch shares
Describe the link between fish population dynamics and their physical environment
Develop and apply length-weight relations
Estimate abundance from mark-recapture data
Estimate growth from length-at-age data
Construct stock-recruitment curves
Model the dynamics of a harvested fish population
Evaluate trade-offs inherent in fisheries management
Compare the different motivations for fishing and how they interact with fishery governance

Instructional Activities: lectures, assigned readings, in-class discussion, guided programming, field trip
Assessment Methods: performance on exams and quizzes, graded homework problems, participation, written and oral term project presentation

Grading
Exams 20% each
Homework problems 20%
Quizzes on assigned reading 10%
In-class discussions 25%
Final project 25%