

Dynamics of Marine Biological Resources

FW 431/531

Credit hours: 4
(HMSC lectures, televised to main campus)

Term offered: Fall, alternate years, next offered 2009.

Instructor: David Sampson

Course Objectives: (1) To explore in detail some of the mathematical models used for describing the dynamic behavior of exploited populations of fish and other marine biological resources. (2) To provide students with an understanding of the assumptions and mathematics that underlie the models used in fisheries management.

Course Contents:

- Harvesting from a single cohort.
 - Mortality and growth of individuals, cohort biomass.
 - The catch process.
 - Catch-per-unit-effort.
- The Beverton & Holt yield-per-recruit analysis.
- Models of recruitment.
 - The Ricker spawner-recruit model.
 - The Beverton & Holt stock-recruit model.
- Total equilibrium yield from yield-per-recruit plus spawner-recruit.
- Surplus production models.
- Bioeconomic model of a fishery system (fish plus fishers).
- Multispecies models.
- Surplus production models with time delays or time-varying parameters.

Prerequisites: Completion of General Ecology (BI 370) or equivalent. Completion of Calculus for Management and Social Science (MTH 241) or equivalent is recommended.

Text: No text is assigned. Collections of recommended and supplemental reading material will be on reserve at the Guin Library at the Hatfield Marine Science Center and at the Valley Library on the main campus.

Term Papers: None.

Testing: One mid-term exam, a final exam, and homework problems.

Students for whom the course is intended: Fisheries major and graduate students, but the course is also available to students in the Marine Resource Management and other programs.

Course Website: <http://oregonstate.edu/instruct/fw431/sampson/>