

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: FISHERIES BIOLOGY
Code No.: FOR 327-3
Program: FISH AND WILDLIFE TECHNOLOGY
Semester: V
Date: AUGUST, 1983
Author: V. WALKER

New: X Revision: _____

APPROVED:

How. Rubin
Chairperson

Date

CALENDAR DESCRIPTION

FISHERIES BIOLOGY
Course Name

FOR 327
Course Number

PHILOSOPHY/GOALS:

A course designed to provide the student with the necessary background for management. The principles of aquatic ecology, the life history and classification of important Ontario fishes and the mechanics of describing fish population are discussed. In addition, the principles which apply to the management of fisheries will be addressed.

METHOD OF ASSESSMENT (GRADING METHOD):

	MARKS
Unit Tests (3)	45
Laboratory Tests (4)	40
Oral Presentation (1)	15
TOTAL	<u>100</u>

TEXTBOOK(S):

FISHERIES MANAGEMENT, 1980. edited by Robert T. Lackey and Larry A. Nielsen. John Wiley and Sons, Toronto.

FISHERIES BIOLOGY

UNIT I - Structure and Form

- form and movement
- respiration, circulation, reproduction
- sensory perception

UNIT II - Systematics and Nomenclature

- fish classification
- biology of sports fish

UNIT III - Ecology and Population Dynamics

- temperate streams
- temperate lakes
- age and growth, mortality
- recruitment and yield
- estimating population size
- dynamics of exploited populations

UNIT IV - Principles in Fisheries Management

- objectives of management
- role of hatchery-reared fish (Video)
- control of undesirable species

FISHERIES BIOLOGY

References

- Bennett, G.W. 1971. Management of Lakes and Ponds. 2nd edition. Van Nostrand Reinhold, Toronto.
- Davis, H.S. 1973. Culture and Diseases of Game Fishes. University of California Press, Berkeley.
- Everhart, W.H., A.W. Eipper and W.D. Youngs. 1975. Principles of Fisheries Science. Cornell University Press, Ithaca, London.
- Lagler, K.F., J.E. Bardach and R.R. Miller, 1962. Ichthyology. John Wiley and Sons, Inc., New York.
- Moyle, P.B. and J.J. Cech, Jr. 1982. Fishes: An Introduction to Ichthyology. Prentice-Hall Inc., New Jersey.

FISH DISEASE REFERENCES

GENERAL

- MAWDESLEY THOMAS, L.E., ed. 1972. Diseases of Fish. No. 30. Symposia of the Zoological Society of London, Academic Press, London and New York. pp. 380.
- RIBELIN, W.E., and G. MIGAKI, eds. 1975. Pathology of Fishes. University of Wisconsin Press, Madison, WI. pp. 1004.
- ROBERTS, R.J., ed., 1978. Fish Pathology. Bailliere Tindall, London. pp. 1978.
- ROBERTS, R.J. and C.J. SHEPHERD, 1974. Handbook of Trout and Salmon Diseases. Fishing News (Books) Ltd., Surrey, England. pp. 168.
- WARREN, J.C. 1978. Diseases of hatchery fish. United States Fish and Wildlife Service. Twin Cities, Minnesota. pp. 94.
- WOOD, J.W. 1968. Diseases of Pacific Salmon, their Prevention and Treatment. Hatchery Division, Department of Fisheries, State of Washington, Olympia, WA. pp. 82.

BACTERIAL AND FUNGAL (see also GENERAL references above)

- BULLOCK, G.L., D.A. CONROY, S.F. SNIEZSKO 1971. Bacterial diseases of fishes. In Snieszko S.F. and H.R. Axelrod, eds. Book 2A of Diseases of Fishes. T.F.H. Publications, Inc., Neptune City, N.J. pp. 151.

VIRAL (see also GENERAL references above).

- SNIESZKO, S.F., R.F. NIGRELLI, K. WOLF. 1965. Viral disease of Poikilothermic Vertebrates. New York Academy of Sciences. Annals of the New York Academy of Sciences, New York, N.J. pp. 680.
- WOLF, K. 1966. The Fish Viruses. Advances in Virus Research. Vol. 12, Academic Press. New York, N.J. pp. 36-101.

PARASITIC (see also GENERAL references above).

- HOFFMAN, G.L., 1967. Parasites of North American Freshwater Fishes, University of California Press, Berkeley, CA pp. 486.

FISH DISEASE REFERENCES (cont'd)

HOFFMAN, G.L. and F.P. MEYER. 1974. Parasites of Freshwater Fishes. T.F.H. Publications, Inc., Neptune City, N.J. pp. 224.

KABATA, Z. 1970. Crustacea As Enemies Of Fishes. In S.F. Snieszko and H.R. Axelrod, eds. Book 1 of Diseases of Fishes. T.F.H. Publications, Inc., Neptune City, N.J. pp. 171.

NUTRITIONAL

ASHLEY, L.M. 1972. Nutritional Pathology. In Halver, J.W., ed. Fish Nutrition. Academic Press, New York, N.Y. pp. 439-537.

HALVER, J.E. 1976. Nutritional Deficiency Diseases In Salmonids. Fish Pathology 10: 165-180.

ENVIRONMENTAL AND EFFECTS OF ENVIRONMENT ON INFECTIOUS DISEASES (see also GENERAL references above).

FRYER, J.L. and K.S. PILCHER. 1974 Effects of Temperature of Diseases of Salmonid Fishes. U.S. Environmental Protection Agency. Washington, D.C. pp. 115.

WEDEMEYER, G.A., F.P. MEYER, L. SMITH. 1976. Environmental Stress and Fish Diseases. In S.F. Snieszko and H.R. Axelrod, eds. Book 5 of Diseases of Fishes. T.F.H. Publications, Inc., Neptune City, N.J. pp. 192.

FISHERIES BIOLOGY

STUDENT EVALUATION

A. Term Test

There will be three term tests based on lecture material following Units I, III, & IV. Each term test will be valued at 15 marks each, comprising 45% of the course grade.

B. Laboratory Test

Several practical lab tests based on the identification of Ontario's fresh water fish will comprise 40% of the course grade.

Students will also be tested on the use of identification keys.

C. Presentation

Students will give a 20 minute oral presentation (complete with visual aids, overheads etc.) for a total value of 15% of the course grade.

A list of presentation topics will be provided. Students will work in groups of two's and are expected to thoroughly research and jointly present the topic. Term tests will include that information presented by each student group.

PRESENTATION TOPICS

1. Invasion of the Sea Lamprey in the Great Lakes.
2. Introduction of the Pink Salmon to the Great Lakes.
3. The Morphoedaphic Index.
4. The SCOL Symposium.
5. THE PERCID Symposium.
6. SPOF.
7. Acid Rain and its effect of Fish Production.
8. Common Ontario Fish Parasites - cause and diagnosis.
9. Fish Development - F: Salmonidae.