

# The University Senate of Michigan Technological University

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## PROPOSAL 37-04

### BS PROGRAM IN BIOLOGICAL SCIENCES, FISH BIOLOGY CONCENTRATION

#### Description

The proposed Fish Biology Concentration in the existing Bachelor of Science in Biological Sciences program focuses on native fisheries and aquatic ecosystems ecology. Emphasis is placed on species interactions, fish conservation, anthropogenic effects, current and historical fisheries and data analysis. The impact of local and global issues upon the great lakes fisheries is investigated.

#### Related Programs at Michigan Universities

Michigan State University: Department of Fisheries and Wildlife offers a B.S. degree preparing students for careers in fisheries with emphasis on Fisheries, Fish Ecology, and Limnology/Aquaculture among others.

University of Michigan- Ann Arbor: The School of Natural Resources and Environment and the Program in Biology offer studies in Fisheries Science through the School, the Institute of Fisheries Research, and the Ecology and Evolutionary Biology Program.

Lake Superior State University: The College of Natural and Health Sciences offers a B.S. degree with a concentration in Fisheries Management.

Central Michigan University: The Biology Department offers course work in Fisheries and Aquatic Ecology through their Conservation, Ecology and Natural Resources Faculty.

Grand Valley State University: The Biology Department offers a B.S. with an emphasis in Aquatic and Fisheries Biology.

Northern Michigan University: Offers course work in Ichthyology and Fisheries Management in the B.S. in Biology.

Eastern Michigan University: Offers course work in Ichthyology in the Biology B.S.

Wayne State University: Offers course work in Ichthyology in the B.S. in Biological Sciences.

#### Rationale

Student interest in this topic has grown over the years. We have experienced increased interest and student involvement in various fisheries and fish biology projects. The fish Biology Concentration will provide a strong background for students wishing to pursue advanced degrees in this field or enter the job market.

The faculty expertise exists to support this concentration. Dr. Nancy Auer, Adjunct Associate Professor of Biological Sciences has instructed various fisheries courses over the years and supports various fish research projects (e.g., sturgeon). Dr. Casey Huckins, Assistant Professor of Biological Sciences, has an active Aquatic Ecology program in fish biology and ecology which engages both undergrad and graduate students. His support of the engagement of undergraduates in this program was recognized by the University in the Award of "Graduate Faculty Council Excellence Award".

## **Curriculum design**

Students enrolled in Biological Sciences B.S. degree enroll in the published core courses for the degree and the following Fish Biology Concentration courses:

Required Concentration courses:

BL1580 Introduction to Biological Sciences	1
BL2010 Anatomy & Physiology I	3
BL2011 Anatomy & Physiology I Lab	1
BL2020 Anatomy & Physiology II	3
BL3190 Evolution	3
BL4440 Fish Biology	4
BL4470 Analysis of Biological Data	4

Electives within the Concentration (Choose 2 of the following courses):

BL2170 Zoology	4
BL4450 Limnology	4
FW4610 Wildlife Ecology	3

## **New course description**

One new course will be offered:

BL4440 Fish Biology, 4 credits (3 hours lecture, 3 hours lab) Fishes and their habitats, native and exotic fishes of the Great Lakes region, and ocean fishery resources will be examined. Basic topics in Ichthyology and fish ecology, evolution, genetics, reproduction strategies and identification of early life stages, fish community structure, food webs and dynamics. Laboratory exercises on sampling, identification and classification of fishes and basic fish anatomy and discussion of scientific papers relevant to the subject material.

## **Planned Implementation Date**

Fall 2004

## **Additional Resources Required**

None

## **Accreditation Requirements**

None

**Adopted by Senate: 21 April 2004**

**Approved by President: 26 April 2004**