

**Fish Ecology and Conservation (BIO 7408)**

**Spring 2006**

**Lecture: TR 8:00A – 9:15A**

**Laboratory: F 2:00P – 5:00P**

**Room 104, Freeman Building**

**INSTRUCTOR:** Dr. Timothy H. Bonner

**OFFICE:** Room 206, Freeman Building

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**OFFICE HOURS:** MTWRF 7:30A-9:00A

**Course Description:** An introduction to principles and techniques in fisheries management and fish ecological investigations. Includes the study of artificial reproduction, carrying capacity, productivity, sampling procedures, population estimates, mortality, survival, growth rates, and commercial and sport fisheries.

**Text:**

Murphy, B. R., and D. W. Willis, editors. 1996. Fisheries techniques, Second Edition. American Fisheries Society, Bethesda, Maryland.

**Grading:**

Lecture exams (2): 200 pts

Oral presentation: 100 pts

Stream Report: 100 pts

Lake Report: 200 pts

Participation: 50 pts

Total Points: 650

**Laboratory Trips:**

January 27—Canyon Lake Sampling

February or March \_\_--Big Bend Stream Survey

February \_\_\_--Lake Sampling #2

March \_\_--Lake Sampling #3

**Laboratory and Laboratory Reports:**

Laboratory will be self-paced. The laboratory TA will be available on Friday afternoons for questions.

\*Reports will include Methods, Results, and Discussion in AFS format.

Game fishery assessment:

- 1) Relative abundance
- 2) Length frequency distribution analysis.
- 3) Calculate PSDs and RSDs for all sunfish, LMB, crappie, white bass, and catfish.
- 4) Determine length/weight relationship, growth rates, condition factors, and  $W_r$  for species with adequate information available.
- 5) Determine mortality rates for all species
- 6) Determine back-calculated lengths for LMB
- 7) Determine growth rates for all species
- 8) Compare whole otolith ages to sectioned otolith ages

Stream assessment (Rio Grande):

- 1) Relative abundance and density
- 2) Length frequency histograms (age, growth, mortality estimates)
- 3) Habitat assessment

#### 4) Multivariate/univariate analyses

##### **Lecture:**

Feb 14: Choose a lecture topic related to your research project; assign lecture date. Two weeks prior to lecture, you must submit an outline of your presentation. Lectures will start April 6.

*Students with special needs (as documented by the Office of Disability Services) should identify themselves at the beginning of the semester.*

##### **Lecture Course Outline:**

Introduction and Definitions

History/Legislation

Economics

Objectives and Assessment

Fish Population Dynamics

    Reproduction

    Age and growth

    Mortality

    Diet

    Movement

Population Assessment

    Passive

    Active

    Electrofishing

    Creel

Aquatic Habitats/Assessment

Management

    Regulations

    Stockings

    Habitat

Ecological Applications

See Withdrawal Policy in the undergraduate catalog and schedule of classes for additional information.