

## **Tentative Syllabus for Scientific Diving BIOL 3680**

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### **Course Objectives:**

1. Develop a practical and theoretical understanding of methods for conducting underwater ecological research (rather than general scientific or statistical theory).
2. Examine a range of procedures and available equipment, and discuss the advantages and limitations of each.
3. Gain hands-on experience working in subtidal habitats with SCUBA (eg, taking measurements, deploying equipment, building structures)

### **Lecture and field exercise schedule**

#### **Lecture (Instructor)**

1. Program planning (JL)
2. Specimen collection (AP)
3. Habitat mapping (RS)
4. Measuring abundance (RS)
5. Tagging and marking (RS)
6. Animal movement (RS)
7. Sampling design (RS)
8. Skills training (RS)
9. Environmental measures (AS)
10. Sampling Fish (AP)
11. Experimental design (RS)
12. Photography (AP)

#### **Exercise (Site)**

1. Site survey, collection (DC)
2. Sampling benthos (DC)
3. Tagging benthos (DC)
4. Animal movement 1 (DC)
5. Animal movement 2 (DC)
6. Performance Tasks (Pool Tank)
7. Environmental measures (DC)
8. Sampling Fish (TL)
9. Field experiment (TL)
10. Photographic sampling (DC)

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|----------------------------------|---------------------------------------|
| 13. Equipment deployment (JL)    | 11. Deploying gear, construction (DC) |
| 14. Special applications (JL)    | 12. Optional night dive               |
| 15. Photographic evaluation (AP) |                                       |

Class review, assessment

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Sites: DC, Duncan's Cove; CC, Cranberry Cove; TL, The Lodge

**Evaluation:**

**Field exercises: 40%**

Students submit extended dive logs listing accomplished tasks, working conditions, problems encountered, etc) and transcribed data sheets (where applicable) after each exercise. Students participate in post-dive discussion and analysis of methods/tasks.

**Final Exam: 60%**

Students design a dive program to address a scientific question (e.g. drawn from list generated during post-dive discussions, specified by instructors, or determined by the student).

**References:** (in-class copies of texts available):

Kingsford , M. and Battershill C. 1998. Studying Marine Environments: a handbook for ecologists. Canterbury University Press

Coyer, J., Stellar, D. and Witman J. 1999. The Underwater Catalog. 2nd Ed. Shoals Marine Laboratory

Additional readings: lecture notes, journal articles, manuals, technical reports, websites