

## **BIOL 311 (COASTAL MARINE ECOLOGY) - St. Francis Xavier University**

**Professor: Dr. Ricardo A. Scrosati**

### **2018 Syllabus**

#### **LECTURES**

C4 (Monday 13:15–14:05), C5 (Wednesday 12:15–13:05), and C6 (Friday 11:15–12:05) blocks.

#### **FIELD PROJECT**

This will be a term-long project based on field work done in rocky intertidal habitats from Nova Scotia's sea coast. Because of the timing of low tides (necessary to access field sites) and time to reach the coast and return to town, field trips will take place on certain weekend days to avoid any overlaps with other courses. The dates will be established through consultation with the class to maximize attendance. Field trip time will replace lab time accordingly. The evaluation scheme will be explained in class.

Labs: B8-C8-K8 blocks (Wednesday 14:15–17:05).

#### **LITERATURE PROJECT**

Oral presentation on a topic selected by the student. The presentations will take place on Wednesday, 21 and 28 November (B8-C8-K8 blocks: 14:15 – 17:05).

#### **EXAMS**

Quiz (14 September), mid-term exams (10 October and 7 November), and final exam (December).

### **Course Contents**

Scientific method in ecology. Manipulative vs. mensurative experiments to test ecological hypotheses.

Characteristics of the coastal marine environment. Abiotic factors influencing coastal marine life: tides, temperature, salinity, desiccation, irradiance, wave action.

Intertidal zonation. Coastal biodiversity. Biological adaptations.

Population dynamics of coastal marine organisms.

Functional-form hypothesis for seaweeds.

Ecology of invertebrate larvae, or supply-side ecology.

Spatial population synchrony. Metapopulations.

Benthic-oceanic coupling of population processes.

Species richness, diversity, and evenness.

Environmental-stress model of community organization.

Foundation species.

Direct and indirect interactions among species. Competition, herbivory, predation, facilitation.

Nonconsumptive predator effects on prey.

Disturbance and succession. Alternative stable communities.

Regulation of kelp-urchin communities.

Climate change: Ocean warming and acidification.

Overfishing effects on ecosystems. Invasive species. Marine protected areas.

**BIBLIOGRAPHY**

Selected figures from the scientific literature, PowerPoint presentations, and journal articles available online from StFX's Library.

**FINAL MARK BREAK-UP**

Exams: 60 % (10 % quiz, 20 % best-of-two mid-term exams, 30 % final exam)

Field Project and Labs: 25 %

Literature Project: 15 %