Subject (English)	Aquatic Plant Ecology	Semester	Fall	Day/Slot	Tue./2nd 10:30-12:00
科目名 (日本語)	水圏植物生態学				
Course Code	ABG3017	Course Numbering	ABS-APS343E	Period	Oct. 1, 2019 – Jan.21, 2020
Instructor (Post)	Y. Agatsuma (Prof.)			Campus	Aobayama Shin
				Building	Aobayama Commons
Faculty	Faculty of Agriculture	Credits	2	Class Room	Lecture Room 9

Class subject	Interaction between herbivores and marine plants in coastal rocky bottoms

Object and summary of class

This course provides reproduction, grazing activity, population dynamics of herbivores associated with Kelp beds(forests). Students will learn marine forestation technology, and management and enhancement means of sea urchin and abalone stocks associated with their ecological characteristics.

Keywords	Kelp forest, Sea urchin, Barren, Grazing, Population dynamics, Production, Rocky subtidal ecosystem, Phase shift Global warming

Goal of study

The goal is to understand how sea urchin and abalone maintain their population associated with seaweeds beds and how enhancement means of seaweed, sea urchin and abalone were developed on the basis of biology and ecology.

Contents and progress schedule of class

No.	Date	Contents
1	10/1	Structure and function of marine forest
2	10/8	Structure and function of marine forest
3	10/15	Reproduction of herbivore
4	10/29	Growth and gonad production of herbivore
5	11/5	Grazing activity
6	11/12	Grazing activity
7	11/19	Chemical defense of seaweeds
8	11/26	Mechanisms of population maintenance and fluctuation
9	12/3	Effects of sea urchin grazing on rocky subtidal communities
10	12/10	Effects of sea urchin grazing on rocky subtidal communities
11	12/17	Restoration of “barren”
12	12/24	Effect of ocean warming and acidification on rocky subtidal communities
13	1/7	Effect of ocean warming and acidification on rocky subtidal communities
14	1/14	Development of enhancement means of sea urchin and abalone
15	1/21	Development of enhancement means of sea urchin and abalone

Preparation	-
Record and evaluation method	Examination, report and attendance
Textbook and references	Reference texts: - Lawrence JM (2013) Sea urchins: biology and ecology. Elsevier. - Schiel DR and Foster MS (2015) The biology and ecology of giant kelp forests. University of California Press
Self study	Review is required.
In addition	Questions, comments, and requests are accepted. Send them to Professor Agatsuma: yukio.agatsuma.c7@tohoku.ac.jp Office hour: Tuesday 16:00~18:00 in Professor room of Laboratory of Marine Plant Ecology