

# Quantitative Literacy in Population Ecology

## Course Syllabus

### Instructors' Information

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### Course Description

This mini hybrid course aims to teach quantitative literacy concepts and skills is necessary to help students make sense of real-world situations. This course will take students through the steps of collecting, analyzing and presenting data from a given set of scientific data about population ecology. By the end of the course, students will be able to predict the impact of environmental changes for a specific species population and propose a possible solution for conservation and sustainability within the species' ecosystem.

### Course Content

1. Coral Reef Biology
2. Scientific Data I: Random Sampling, Data Table, and Graphs
3. Coral Reef Ecosystems
4. Scientific Data II: Interpreting Tables and Graphs
5. Coral Reef Conservation

### Major Course Objectives

- Students will be able to describe physiological, ecological, and behavioral strategies used for successful population growth.
- Students will be able to compare random sampling with data obtained by an actual count.
- Students will be able to construct a basic graph with provided data.
- Student will be able to predict the impact of environmental changes on the organisms in an environment.
- Students will be able to interpret data given a table or graph and describe trends regarding population relationship.
- Students will be able to propose a possible solution for conservation and sustainability of an organism in an ecosystem.

### Course Methodology

The Coral Reef Ecosystem mini hybrid (both F2F and online) course is designed to supplement the 9th grade Biology curriculum at Punahou School. It will be delivered primarily over the internet in an online environment through Lulima and Wikispaces. To access the course, students will need a web browser such as Safari, Chrome, Firefox, or Internet Explorer and reliable internet connection. The course activities will consist of online presentations, individual and team projects, and computer-based assessments through online surveys and quizzes. Interaction will conduct mainly through e-mail, asynchronous discussions, and F2F meetings. Assignments will be submitted to the instructors through Lulima assignment.

### **General Course Conduct and Policies**

Students are expected to review all presentations, visit assignment websites, participate in online activities, and submit all assignments in a timely manner.

### **Assignment Submission**

All assignments are due on the date specified. Assignments should be submitted through Lulima assignments as a Microsoft Word (.doc) or Adobe Portable Document File (.pdf). For each calendar day the assignment is submitted late, 10% will be deducted from points earned for that assignment.

### **Communication Tools**

As this course will be conducted mostly online, communication is important for success in the course.

1. *Discussion and Private Messages in Lulima* serves are the most important way to communicate with instructors and peers throughout the course.
  - a. *Questions* to be used for general questions and/or comments relating to course content.
  - b. *Class Discussions* to be used for participating in class discussions as assigned.
  - c. *Student Lounge* to be used for other questions/topics amongst students.
2. *E-mail* instructors or peers for messages that are private or to arrange collaboration with team members
3. *Q & A during F2F meetings*. Instructors will allow the last 10-15 minutes of F2F meetings for questions and clarifications about the online course. Additionally, at the first F2F meeting, instructors will guide students on how to use Lulima and Wikispaces. Tutorials will also be posted in Lulima Resources.

## General Message Protocol

Every discussion posts or e-mail message must have the following:

1. The subject line describing the content.
2. Content should be free of typos or grammatical errors.
3. Sign every message with a name you would like to be called.

## Course Requirements

Week and Module Title	Assignments/Assessments	Points
Week 1 Coral Reef Biology	<ol style="list-style-type: none"><li>1. Self-Introduction in Lulima Discussion</li><li>2. Pre-module survey</li><li>3. Discussion post on Coral Reef Interactive website and Great Barrier Reef Virtual Tour</li><li>4. Post-module survey</li></ol>	10 10 10 10
Week 2 Scientific Data I: Random Sampling, Data Table, and Graphs	<ol style="list-style-type: none"><li>1. Random Sampling activity</li><li>2. Practice questions</li><li>3. Quiz on Lulima</li></ol>	20 10 50
Week 3 Coral Reef Ecosystems	<ol style="list-style-type: none"><li>1. Discussion post: Effect of carbon dioxide on corals</li><li>2. Understanding Ocean Acidification Packet (collaborate with a partner)</li></ol>	10 30
Week 4 Scientific Data II: Interpreting Tables and Graphs	<ol style="list-style-type: none"><li>1. Graphing Deer Population Growth activity</li><li>2. Practice questions</li><li>3. Quiz on Scientific Data Interpretation</li></ol>	20 10 50
Week 5 Coral Reef Conservation	<ol style="list-style-type: none"><li>1. Screenshot of Coral Reef Game</li><li>2. Multimedia Conservation Poster</li><li>3. Exit Survey</li></ol>	10 50 10
	Total	310