Syllabus

Course Name:	Bringing National Science Foundation Marine Science and Hawaiian Volcanology to Kauai Complex Schools
Course Contact:	Linda Sciaroni phone (808) 632-0945 e-mail sciaronilinda@aol.com Prof. Garrett Ito (808) 956-9717, email: gito@hawaii.edu Course Sponsor: Glenda Miyazaki, Principal Waimea Canyon School
Instructor/Qualifications:	Linda Sciaroni: National Board Certification Adolescent Young Adult Science Hawaii Math and Science Licenses grade 4-12 Organizer of Kauai Family Science Nights Masters Degree CSULA Special Education/Gifted Education Garrett Ito: Ph. D. Marine Geology & Geophysics; Professor, Dept. of Geology & Geophysics, School of Ocean and Earth Science Technology (SOEST), U. Hawaii, Manoa (UH); Executive Council, Hawaii Academy of Sciences and State Science & Engineering Fair
Organization:	Kauai Complex in collaboration with University of Hawaii Manoa, SOEST
Purpose of the Course:	•Integrate state-of-the-art knowledge of volcanism on and offshore Kauai into the curriculum of the Kauai Complex Schools. •Initiate standards based math, earth space science, physical science, chemistry, biology lessons using facilities and data collected during a cruise of the University of Hawaii's research vessel the Kilo Moana. •Initiate and facilitate contact between teachers and UH scientific researchers to support the development and implementation of lessons in the classroom that reflect new knowledge gained from scientific endeavors. •Augment teacher expertise with hand-on laboratories by providing experience in analysis of existing labs, designing new lab equipment and exercises, and in analyzing student interaction with the lab materials to both critique the labs and to better adapt to student learning styles.
Specific Objectives:	1. Teachers will develop a portfolio demonstrating content knowledge with materials ready for use in their classroom. (specifics of the contents of the portfolio are delineated below) 2. Teachers will learn valuable background content knowledge. (benchmarks of the HCPS III are listed in detail below under course activities) 3. Teachers will learn teaching strategies of inquiry and constructivism for incorporating volcanology and marine science

	into their classes.
Activities to Achieve Objectives:	1. Two extensive presentations/lectures by University of Hawaii (SOEST) researchers-- one at the first class session before the cruise and one after the cruise to share some of the experiences and findings. 2. Two, 4-hour class sessions in which teachers perform inquiry labs for students pertaining to geology, physics, chemistry, and engineering as relate to activities conducted on board the Kilo Moana research vessel. 3. Two Family Science Nights- including teacher preparation and set-up of 10-20 lab stations and observations of students and families participating in the labs. 4. Facilitated discussion and debriefing of the family science activities, to evaluate and recommend improvements for the labs, and to assess student comprehension-- at the second class session 5. Preparation of a final portfolio including analysis of student work. 6. Weekly interaction with Kilo Moana Cruise researchers (September 9-October 7) as they map and sample volcanoes offshore of Kauai using submarine robots. Content to be studied: Design of student hypothesis and experiment (SC 4.1.1)(SC 8.1.2)(SC.ES. 1.4)(SC.CH.1.2) Technology for Data collection and communication aboard the Kilo Moana (SC 4.2.1)(SC 8.2.2)(SC.PS. 2.1)(SC.ES. 2.1)(SC.ES. 2.4) (SC. CH. 2.1) The rock cycle and the nature of matter. Creation and evolution of volcanic rocks and their physical properties- (SC 4.6.1) SC 8.8.2 and 8.8.1) Plate tectonics (SC 8.8.5)(SC.ES. 8.5) Forces that shape the Hawaiian Islands and the oceanic seafloor (SC 8.8.6 and 8.8.7) (SC.ES. 8.6) Cycles of Matter and Energy (SC.BS 3.1)(SC.ES. 8.8) Energy Transformation (SC. PS. 6.4) Examples of simple machines and force and motion problems from the mechanical tools used by the ocean explorers; advances in technology have led to further options for research (winches, pressurized submarine etc.) (SC.PS 7.2)(SC.ES. 2.1) (SC.ES. 2.4)
Course Key Dates:	Start Date: August 18, 2007 Course End date: December 31, 2007 Note to Participants: By registering for this course you acknowledge that you are aware of the following: 1. You have reviewed the course key dates. 2. You are aware that course end dates are four weeks after the portfolio due date. 3. The course end date is the date that you will receive the credit(s) for this course on your transcript. 4. You are aware of the current Teacher Reclassification policies, procedures, and guidelines. 5. If you are not aware of the current Teacher Reclassification policies, procedures, and guidelines, you agree that it is your responsibility to obtain that

	information and that it is not the responsibility of the Professional Development Credit Program or the Professional Development Support Unit to provide you with that information. 6. You are hereby advised that according to the current Teacher Reclassification Guidelines as stated in the memo dated September 25, 2006 subject title: Guidelines for Approval of Academic/Professional Development Credits for Teacher Reclassification School Year 2006-2007 "Credits submitted for a change in classification must be completed prior to the effective date of the reclassification. The beginning of a school semester shall be the effective date of reclassification". Which means that you must complete the course (course end date) prior to the start of the first day of the semester. Therefore, you are aware that depending on when the course end date is; a possibility exists in which you may not be able to use the credits from this course for reclassification until a later semester.
Course Schedule: (Dates/times/location) (Specific dates and times must be listed)	Chiefess Kamakahelei Middle School Class session 1:August 18, 2007 8 am to 4:30 pm Two of the three Family Science Nights: October 24 (Chiefess Kamakahelei, November 6 (Kapaa Middle), or November 8 (Waimea Canyon School) 4:00 to 8:00 pm Class session 2: November 10, 2007 8 am to 4:30 pm Portfolio Preparation Workshop: December 10, 2007, 8-10:00 am Portfolios due December 21, 2007 to the instructor.
Requirements: (Prerequisite skills, text reading) **Prior approval from teacher's principal or supervising administrator is needed to use this course for reclassification (Form 201a)**	An interest in current information in Volcanology and Marine Science. Willingness to serve at 2 Family Science Nights in Kauai.
Content of Learning Portfolio	1. Analysis of two laboratory exercises, e.g., samples of student lab results, improvements of a lab station based on feedback from Family Science Night or teacher workshops, and/or video analysis of several families' interaction with a lab station during Family Science Night. This analysis is the result of 4 exposures to the lab. Once at the teacher workshop, twice as a station at family science night, then the teacher will make important revisions and pilot the lab with their classes. 2. Identify and describe work samples from the above labs that are approaching according to the benchmarks found in HCPS III and provide teacher commentary of how to improve the student work to proficient. Guidelines from the National Board for Professional Teaching standards will be used as the grading

	rubric. 3. Notes from the course, evidence of new knowledge gained in the course, annotated bibliography of preferred books and source materials reviewed (e.g.-the resources of National Science Foundation, National Oceanic and Atmospheric Administration: Ocean Explorer, Lawrence Hall of Science, BRIDGE, and Geoblox) 4. The outcome of a proposed research question, which can be explored on board the Kilo Moana either through data collection or interview of the researchers. (Research question must be submitted to Linda Sciaroni prior to August 31 to be used during the 2007 cruise.) 5. Evidence of participation by students in the monitoring of the cruise. (e.g.- worksheets of data- Mapping Log, Ocean Log, Communications Log, Sky log, Weather log, questions posed by students for the crew or researchers). All aspects of the cruise enterprise are open to student inquiry from career advice from the crew, living conditions at sea, and all the aspects of the research endeavor. Regular data and information will be made available to students during the cruise through phone calls, web posting, e-mail, and internet blog. Each participant's learning results portfolio may contain a variety of documents but each document MUST have a *caption. Captions transform documents into evidence and assist teachers in articulating their thoughts. A caption is a statement attached to each document in the portfolio that describes:* ✶ *What the document is* ✶ *Why it is evidence?* ✶ *What it is evidence of*
Cost of Course:	None --Course costs are covered through a grant from the National Science Foundation to SOEST, UH. Participants will leave the course with all necessary materials to conduct several labs with their students.
Fee Payment to:	NA
Payment Deadline:	NA
Other Instructions:	

Sponsor: Save this completed document as **syllabus.doc** and upload with Application together with the course Program Plans and PD Elements Checklist.