rev 8/20/15

SCI 160 A Polynesian Voyaging and Seamanship

3 credits
CRN: 60528
Mon & Wed 11:30 am – 12:45 pm

INSTRUCTORS:	**Joseph Ciotti, Floyd McCoy & Ilima Choy**
OFFICE:	**see chart below**
OFFICE HOURS:	**posted on office door**
TELEPHONE:	**see chart below**
EMAIL:	**see chart below**
EFFECTIVE DATE:	Fall 2015

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai'i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O'ahu's Ko'olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

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CATALOG DESCRIPTION

This course focuses on the fundamentals of voyaging and seamanship by blending the traditions of Polynesian culture, history and skills with modern science and technology. An interdisciplinary approach is used in treating topics in Hawaiian studies, astronomy, geology, oceanography, meteorology, marine biology, ethnobotany and archaeology of Polynesia and Hawai'i. Gen Ed/Focus: Associate in Arts — Physical Sciences (DP)

PREREQUISITES: none

COREQUISITE:

- SCI 160 A: none
- SCI 160 B: concurrent enrollment in SCI 160 L

Activities Required/Optional at Scheduled Times Other Than Class Times:

- see syllabus
- OPTIONAL field trips: If SCI 160 L is offered during the semester, SCI 160A students may be invited to attend special non-sailing excursions scheduled for the lab (SCI 160L)

Instructors:	Dr. Joseph Ciotti Coordinator	Dr. Floyd McCoy	Ms. Paulene (Ilima) Choy
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email:	ciotti@hawaii.edu	fmccoy@hawaii.edu	paulene.choy@gmail.com

STUDENT LEARNING OUTCOMES

Upon successful completion of the course, the student will be able to:

1. Describe the basic geography of Polynesia.
2. Apply the fundamental concepts in positional astronomy (including the seasons) and identify of two of the four recognized star lines used for navigation.
3. Explain the basic principals in wayfinding (non-instrument navigation).
4. Discuss Polynesian migration as gleaned from archaeological findings.
5. Discuss Polynesian mythology and cosmology, especially as related to voyaging.
6. Apply the basic concepts in geology, especially of the Pacific area.
7. Discuss fundamentals of weather forecasting as related to the Pacific Ocean.
8. Identify native and Hawaiian plants, especially those used in voyaging

COURSE OVERVIEW

A. Goals of the Course

This course strives to blend the traditions of the ancient Polynesian voyaging culture with present scientific knowledge in order to prepare students who will be better able to contribute to a sustainable future for Hawaii's environment.

The goals of the course are:

1. To provide the student with the fundamental knowledge and concepts of the physical and biological world, especially as related to our Hawaiian environment.
2. To enhance student awareness in the human endeavor of exploration and voyaging by developing the basic skills of seamanship and navigation.
3. To provide the student with both skills in and scientific approaches to voyaging and seamanship, both ancient and modern.
4. To cultivate and enhance the student's ability to reason by applying the scientific method and by utilizing traditional voyaging and seamanship skills.
5. To promote greater student appreciation and awareness of the impact which human activities have on our local and global environment.

B. Expectations of Students

Success in this course will be enhanced by:

1. a positive, inquiring attitude toward science and mathematics;
2. setting aside adequate time for studying and working problems;
3. reading the text carefully and making use of other learning materials whenever necessary;
4. seeking assistance from the instructor;
5. class attendance and responsibly fulfilling all course assignments and tasks;
6. keeping abreast with or ahead of the syllabus.

C. Mode of Instruction

Lecture/Discussion: The initial portion of each class period is used to review and clarify any questions from the previous class meeting. The remaining portion is used to present and discuss new materials. Appropriate audio-visual materials will be used to supplement the lectures.

ASSESSMENT TASKS AND GRADING

Method of Evaluation

Evaluation of the successful completion of the objectives of this course will be based on quizzes (or in some cases, projects) administrated after each session in astronomy, oceanography/geology, and Hawaiian Studies. There is no Final Exam. Points are assigned as follows:

Quizzes and/or projects

1.	Astronomy Sessions	50 points
2.	Oceanography/Geology Sessions	50 points
3.	Hawaiian Studies	50 points
	Total:	**150**

The Quizzes will be administered within the classroom environment; all are closed-book.

Test dates are listed on the course syllabus. The student is responsible for keeping abreast with any changes in syllabus that are announced in class. Unless permission is granted by the instructor, all tests must be completed and submitted to the instructor at the specified date and time.

Grading System

Each letter grade and its respective level of achievement is provided in the following table:

Letter Grade	Definition	
A	90% - 100% of cumulative points possible	(excellent achievement)
B	80% - 89% of cumulative points possible	(above average achievement)
C	70% - 79% of cumulative points possible	(average achievement)
D	60% - 69% of cumulative points possible	(minimal passing achievement)
F	below 60% of cumulative points possible	(less than minimal passing achievement)

I Incomplete: This is a temporary grade given at the instructor's option when a student has failed to complete a small part of a course because of circumstances beyond the student's control. The student is expected to complete the course by the designated deadline in the succeeding semester. If this is not done, the "I" will revert to the contingency grade identified by the instructor.

Credit/No Credit Option

Note: Refer to the current Schedule of Classes for CR/NC declaration deadlines. This grading option is not available in all courses and will not be offered to majors in required courses.

CR Achievement of objectives of course at the C level or higher. (course credit awarded)
NC Used to denote achievement of objectives of the course at less than C level under CR/NC option. (no course credits awarded)

N The "N" grade, which is issued at the instructor's option, indicates that the student has worked conscientiously, attended regularly, finished all work, fulfilled course responsibilities, and has made measurable progress. However, either the student has not achieved the minimal student learning objectives and is not yet prepared to succeed at the next level, or the student has made consistent progress in the class but is unable to complete the class due to extenuating circumstances, such as major health, personal or family emergencies, (no course credits awarded)

W Official withdrawal from the course course. See the Schedule of Classes for information regarding current semester deadlines. If a student officially withdraws within the erase period, the record of registration will not appear on the student's transcript. (no course credits awarded)

L Audited Course (no course credits awarded)

LEARNING RESOURCES

Required Materials

- Astronomy sessions: provided in class. **Student must provide a three-ring folder**.
- Oceanography/Geology sessions: provided in class
- Hawaiian Studies sessions: provided in class

Recommended/Optional materials

- Astronomy sessions: provided in class
- Oceanography/Geology sessions: provided in class
- Hawaiian Studies sessions: provided in class

Additional Information

1. **Make-Up Test**: If a student is unable to take an exam at the scheduled time, the student is responsible for notifying the instructor of the situation and reason(s). The student is responsible for requesting a make-up exam. An appropriate scoring penalty may be assigned to this make-up at the instructor's discretion. The student may be required to fulfill additional requirements as specified by the instructor in order to qualify for a make-up test. **No more than one make-up test is allowed per student in this course.** Any test not taken will be assigned a score of zero.

2. **Retest:** Retests are **not** permitted.

3. If you have a physical, sensory, health, cognitive or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor, Ann Lemke, to discuss reasonable accommodations that will help you succeed in this class. She can be reached by phone at 235-7448 or via email lemke@hawaii.edu, or you may stop by Hale ʻĀkoakoa 213 for more information.

4. A student can determine his/her current grade at any time during the semester by dividing his/her cumulative score by the cumulative points possible and converting into a percentage and referring to the table of Letter Grades.

5. Any student wishing to know of his/her semester grade in advance of the official report of grades should email a request for the grades to the instructor immediately after the last day of instruction.

SCI 160A Fall 2015

(CRN 60528)

MW 11:30 am – 12:45 pm

Polynesian Voyaging & Seamanship

A:	Astronomy	Joe Ciotti	(‘Imiloa 133)
G:	Geology/Oceanography	Floyd McCoy	(‘Imiloa 117)
H:	Hawaiian Studies	Ilima Choy	(‘Imiloa 133)

	MONDAY	WEDNESDAY
AUG	24 **A** Horizon Coordinates & Movement of Sun *(‘Imiloa 133))*	26 **A** Plotting the position of the Sun
AUG /SEP	31 **A** Maui Snares the Sun; Causes of Seasons & Latitude Variations	2 **A** Scientific Proof of Earth's Size Shape, Rotation & Revolution
	7 **LABOR DAY**	9 **A** **Quiz A-1** (25 pts) Imaginarium
	14 **G** Introduction to Oceanography: Climate *(‘Imiloa 117)*	16 **G** Climate Na Makani Mau
	21 **G** Na Makani Mau Coriolis Effect	23 **G** Introduction to Oceanography: Climate
	28 **G** **Quiz G-1** (25 pts)	30 **H** Mai ka lani no a ka honua: Basic concepts of Papahulilani*;* Na Kūkulu; Nainoa Thompson Star Compass; Navigator’s Perspective: *(‘Imiloa 133)*
OCT	5 **H** A‘o Lani: Mana‘o o Ka La (The Sun) Kumulipo (Oli); Kumukahi (Mo‘olelo); Ha’eha’e and Makanoni; movement of sun along horizon	7 **H** A ‘o Lani: Na Hoku E ‘ohi ‘ohi i na pono (Oli); Migration into Hawaii; Makali‘i: The navigator; Navigator’s Perspective
	12 **H** Kilokilo: Environmental Observations Kaulana e Ka Holo a Hokule‘a (oli); Water Cycle; Cloud observations; Wind / Ocean Observation	14 **H** **Quiz H-1** (25 pts)

SCI 160A Fall 2015

A: Astronomy G: Geology/Oceanography H: Hawaiian Studies

	MONDAY	WEDNESDAY
OCT	19 **A** Navigation Overview Celestial Coordinate system *(ʻImiloa 133)*	21 **A** Polynesian Cosmology Wakea-Papa Legend Star Maps
	26 **A** Constellation ID Manaiakanlani & Ka Lupe o Kawelo *(Hōkūlani Imaginarium)*	28 **A** Constellation ID Manaiakanlani & Ka Lupe o Kawelo *(Imaginarium or Physics Lab)*
NOV	2 **A** **Quiz A-2** (25 pts)	4 **G** Upwelling & Downwelling Nalu *(ʻImiloa 117)*
	9 **G** Oceanography: Nalu	11 VETERANS DAY
	16 **G** Oceanography: Nalu	18 **G** Law of the Sea *(ʻImiloa 117)*
	23 **G** **Quiz G-2** (25 pts)	25 **H** Early Polynesian Migrations Polynesian Triangle; Austral Migration; First Hawaiians and Plants *(ʻImiloa 133)*
NOV /DEC	30 **H** Papahanaumoku: How the islands of Hawaii were formed	2 **H** Early Polynesian Voyagers Pele and Kamohoaliʻi,; Moʻikeha and Laʻamaikahiki; Hawaiiloa
	7 **H** Modern Revitalization of Voyaging In Polynesia Hokuleʻa; Ohana Waʻa; Pacific Voyagers; Malama Honua	9 **H** **Quiz H-2** (25 pts)

FINAL EXAM: none