

OCN 260: Pacific Surf Science and Technology
3 Credits

TIME: Tuesday & Thursday 10:00 a.m. -11:15 a.m.

INSTRUCTOR: Ian Akahi Masterson
OFFICE: Hale Kūhina 110
OFFICE HOURS: T & TH 1:00 – 2:00 p.m. or by appointment
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EFFECTIVE DATE: Fall 2016

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.

CATALOG DESCRIPTION

Pacific Surf Science and Technology is a lecture-based, Internet-intensive course that showcases scientific and industry aspects of the surfing world for surfers and non-surfers alike. The course takes a scientific approach to understanding the natural processes that create and influence waves and surf conditions, while also introducing many ocean safety concepts relating to the environment and the popularity of ocean recreation. A weather and surf journal along with campus field excursions dedicated to studying weather phenomena adds an essential experiential component to the course. This course is designated as a Sustainability S-Related course.

STUDENT LEARNING OUTCOMES

At the successful completion of this course students will be able to:

1. Demonstrate an understanding and basic knowledge of the principles of meteorology, oceanography, and geology as they apply to the creation and shaping of waves and surf.
2. Outline basic water safety techniques used in assessing the coastal environment.
3. Locate and utilize Internet web sites to retrieve surf-forecasting data.
4. Compile logs of weather and surf observations to use in future forecasts.
5. List the various specifications required when designing a custom surfboard and follow the surfboard production techniques.

COURSE CONTENT

<i>Concepts or Topics</i>	Skills or Competencies
<ul style="list-style-type: none"> • Basic principles of meteorology, oceanography; and geology applied to the creation and shaping of waves and surf; • Surf forecasting using Internet web sites and local weather station reports; • Past and present surfboard technology and production; • The principles of design, production, and retail marketing within surfing industries • Multimedia applications related to surfing; • Water safety issues related to surfing; • Basic Surfing Techniques. 	<ol style="list-style-type: none"> 1. Have an understanding of the basic principles of meteorology, oceanography; and geology as they apply to the creation and shaping of waves and surf; 2. Be able to predict surf conditions using Internet web sites and weather reports; 3. Have an understanding of past and present surfboard technology and production; 4. have a basic understanding of the principles of design, production, and retail marketing within surfing related industries; 5. have had exposure to various multimedia applications related to surfing; 6. Have knowledge of water safety issues related to surfing. 7. Have an understanding of the basic techniques of surfing.

COURSE TASKS ASSESSMENT AND GRADING

ATTENDANCE AND PARTICIPATION: Active participation involves being present for all class sessions, submission of assignments prior to discussion, active listening, contribution to in class and online discussions, and asking pertinent questions. Please be on time for class, mahalo. Evaluation of the student's learning outcomes will be based upon completion of homework assignments, in-class and online discussions, and written examinations.

- 50 points** **HOMEWORK DISCUSSION:** Online reactions to reading assignments and lectures will occur throughout the semester. Homework tasks are assigned and discussed on Tuesday, you are expected to answer the questions before class on Thursday, and you may reply to other student posts by Friday (5 points per week). Remember, discussions are monitored by the instructor, please refer to the WCC Student Code of Conduct.
- 50 points** **WEATHER JOURNAL:** The student will develop and maintain an online discussion in which weekly weather and surf observations are logged. The journal will include one entry per week to be completed on Friday so we can discuss weather changes in Monday's class, and longer term changes in Friday's class. PLEASE KEEP UP! (5 points per entry).
- 50 points** **PACIFIC SURFARI PROJECT.** The student will conduct a project on a surfing site in the Hawaiian Islands of interest to the student and/or as suggested in the classroom. Details regarding this project will be presented in class.
- 100 points** **ASSESSMENTS:** Four exams will be given covering the lecture topics, readings, movies, and Internet resources & field exercises. 25 points per exam.

See you in the surf!

METHOD OF GRADING

The assignment of points will be according to the following protocol:

Activity	Points
Lecture/Reading Discussion	25
Weather and Surf Journal	25
Homework Assignments	50
Project	50
Assessments	100
Total Points:	200

Each letter grade with its respective level of achievement is as follows:

Letter Grade	Definition
A	90% - 100% of cumulative points possible (225 – 250 points)
B	80% - 89% of cumulative points possible (200 – 224 points)
C	70% - 79% of cumulative points possible (175 – 199 points)
D	60% - 69% of cumulative points possible (150 – 174 points)
F	below 60% of cumulative points possible (149 points and below)
I	Incomplete: This temporary grade is 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. All required work must be completed by the last day of instruction of the succeeding semester.

See the **WCC Catalog, Academic Regulations** section, for further information regarding WCC grading options and policies.

LEARNING RESOURCES

Orbelian, George. Essential Surfing. (1987), Orbelian Art Books, CA, ISBN# 0-9610548-2-4

Butt, Tony, et al. Surf Science: An Introduction to Waves for Surfing. UH Press, HI, (2004) ISBN# 0-8248-2891-7

Please contact the instructor for further information.

DISABILITIES ACCOMMODATION STATEMENT

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 to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale 'Akoakoa 213 for more information.

See you in the surf!

Beach Assessment Project: Plan A Pacific Surfari

Choose a beach, coastline, or island in the Pacific Ocean and plan a surf trip there. Formulate an innovative report (figures not included) and associated presentation that describes the surfing sites and relevant oceanographic information pertaining to that coastal area. Please include (1) seasonal conditions, (2) swell generating areas, (3) wave shadowing factors & coastal features, (4) bathymetry and wave types, (5) best conditions & predominant winds located along that coast, (6) tide factors, and (7) include links accessing appropriate forecasting models and observation stations for your area. Also, (8) provide data on the ancient and historical developments of ocean recreation at your chosen location, any myths or legends relating to the area, and (9) a coastal assessment that looks at contemporary surfing endeavors and practices, ocean safety policies, and (10) commercial and recreational ocean activities in that district. This includes an overview of any popular surfing locations and any competitions/media hype that the area produces as well as the appropriate equipment needed to surf each site. This project is meant to enrich our understanding of the coastal features and ocean recreation in Hawaii while bringing forward oceanographic concepts that we have covered in class. The following format will guide you through this project. **PLEASE SEE THE COURSE SYLLABUS FOR DUE DATES:**

Project Assignment (I) 10 points: Develop a written proposal for the Beach Assessment Project (ca. ½ to 1 page). A project proposal includes a description of your topic, research goals, thesis (if appropriate) or focus of study, and your proposed methods for reaching these goals, as well as a brief statement about why you chose the topic. A proposal is written in paragraph form, not as a bulleted list.

Project Assignment (II) 10 points: Complete outline for Beach Assessment Project. The project outline is the basis for the written paper as well as the Powerpoint presentation. It is a lay-up for you to follow when you write the report and therefore it should not be in paragraph form. It should include all of the aspects found in the paper. The outline should be utilized as the chronological basis for your oral presentation as well. It is important to remember that an outline is a bulleted list, it is not written in paragraph form.

Project Assignment (III) 15 points: Finish the narrative for the Beach Assessment Project. Your paper should be typed, double-spaced, Times or Times New Roman 12 font, with 1" margins all around. Figures, charts, diagrams, and pictures are encouraged, but should go into the Powerpoint/Presi (or other App) presentation in a way that follows along with this text/narrative. A bibliography/References Cited is also required at the end of the text. Your paper should include an introduction that outlines the proposal and research methods employed, a body that includes a detailed description of the research you accomplished as per the 10 points mentioned above, and a conclusion that assesses the success of your methodology while addressing the overall outcome of your research. Also, write a concluding statement on the outcome of your project personally: Did you learn something new? Was it exciting? Difficult?

Project Assignment (IV) 15 points: Give the presentation in class. Your oral presentation should be about 5-7 minutes long, and it should be presented as if you were planning a surfing trip to that location. Your slides should include the 10 points mentioned above plus your personal reflections on the information and the process—would you still want to go there on surfari after learning more about it? Tell us why or why not. What else did you learn about the place, about the science of waves, about yourself?

See you in the surf!

OCN 260 COURSE SYLLABUS: FALL 2013

WEEK #1

Day 1 Introduction to Course, Review Course Outline & Syllabus, Student Introductions
8/23/2016 Assignment: Read Handouts; Introduce yourself in the Online Discussion.

Day 2 8/25 Pacific Surfari Project Description & Brainstorm, & Campus Weather Walk
Assignment: Read Surf Science Chapters 1&2; Answer Online Discussion Qs.
Project Assignment I: Write a Topic Proposal & submit it on **Day 3**

WEEK #2

Day 3 8/30 CH1&2: Large Scale Weather Patterns, Weather and Surf Check Guidelines
Assignment: Read Handouts; Answer Online Discussion Qs.

Day 4 9/1 Ocean Safety Risk Management in a Dynamic Environment & Campus Weather Walk
Assignment: Read Surf Science Chapters 3&4. Answer Online Discussion Questions

WEEK #3

Day 5 9/6 CH3: The Formation of a Depression—Tropical and Extra-Tropical Storms

Day 6 9/8 CH4: Wave Generation, & Campus Weather Walk
Assignment: Read Surf Science Chapters 5&6. Answer Online Discussion Questions
Project Assignment II: Complete an Outline & submit it on **Day 7**

WEEK #4

Day 7 9/13 CH5: Wave Propagation & CH6: Refraction
Assignment: Prepare for Exam #1 on Chapters 1 through 6

Day 8 9/15 **Assessment: Exam #1**
Assignment: Read Surf Science Chapters 7&8. Answer Online Discussion Questions

WEEK #5

Day 9 9/20 CH7: The Breaking Wave
Assignment: Read Surf Science Chapters 9&10. Answer Online Discussion Questions
Day 10 9/22 CH8: Anatomy of a Beach & Coastal Sediment Transport, & Campus Weather Walk

WEEK #6

Day 11 9/27 CH9 Surfing in the Storm: Windswell vs. Groundswell

Day 12 9/29 CH10 Local Winds: What makes favored Surfing Conditions? & Weather Walk
Assignment: Read Surf Science Chapters 11&12. Answer Online Discussion Questions

WEEK #7

Day 13 10/4 CH11: Temperature on the Water
Review Chapters 1-12; Engage in Online Review Discussion

Day 14 10/6 CH12: Tides; **Study for Midterm Exam NEXT THURSDAY!**

WEEK #8

See you in the surf!

Day 15 10/11 Video: Surfline's **Making the Call** & Midterm Review

Day 16 10/13 **Midterm Exam** & Campus Weather Walk
Assignment: Read Surf Science Chapters 13&14. Answer Online Discussion Questions

WEEK #9

Day 17 10/18 CH13 World Wave Climate: Planning your own global surfing adventure!

Day 18 10/20 CH14 Forecasting the Waves
Assignment: Prepare for Research on you Topic: Make a Task List!!!

WEEK #10

Day 19 10/25 **PROJECT RESEARCH AT LIBRARY!**
Meet at the New Library Commons, top floor, by the Wahaula Heiau display.

Day 20 10/27 International Surf Forecasting Resources & Campus weather walk
Assignment: read Essential Surfing pp. 1-44 & 69-97; Answer Online Discussion Qs.

WEEK #11

Day 21 11/1 Surfing Basics & The Magic Surfboard
Assignment: Essential Surfing pp. 45-98; Answer Online Discussion Qs.

Day 22 11/3 Types of Hawaiian Surfboards and the Waves on which they are ridden
Assignment: Read Essential Surfing pp. 164-199; Answer Online Discussion Qs.

WEEK #12

Day 23 11/8 ELECTION DAY HOLIDAY Assignment: ***FINISH YOUR PAPER!!!***

Day 24 11/10 **Project Assignment III: All Final Papers are Due TODAY!!!**
The History of Surfboard Construction and Technology
Video: **Shapemakers**—Applied approaches to shaping
Assignment: Answer Online Discussion Qs.

WEEK #13

Day 25 11/15 Future Trends in Surfboard Production Techniques
Assignment: read handouts; Answer Online Discussion Qs.

Day 26 11/17 **Project Assignment IV: Project Presentations IN ORDER OF SIGN_UP SHEET!**

WEEK #14

Day 27 11/22— **Project Assignment IV: Project Presentations**
11/24—Thursday, Thanksgiving, No School, Give Thankx!

WEEK #15 & 16

Day 28 11/29 through 12/8— **Project Assignment IV: Project Presentations then Exam Review**

Final Exam is Tuesday, DECEMBER 13, 10:00 a.m. – 12:00 noon. Mahalo!

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