University of Hawaii Maui College
OCN 351 - Coastal Methods and Analyses

1. **Course Alpha. Please click on the ? to the right for help.**

   OCN

2. **Course Number. Please click on the ? to the right for help.**

   351

3. **Course Title/Catalog Title. Please click on the ? to the right for help.**

   Coastal Methods and Analyses

4. **Number of Credits. Please click on the ? to the right for help.**

   3

5. **Contact Hours/Type. Please click on the ? to the right for help.**

   - Hour lecture/lab (5)

   2 hours lecture and 3 hours lab per week, which follows many of the upper-division UH-Hilo MARE courses

6. **Course Description. Please click on the ? to the right for help.**

   Includes planning of field and laboratory data collection and experimentation in the coastal environment. Covers hypothesis development, experimental design, statistical analysis of data, data interpretation, scientific writing, and presentations.

7. **Pre-Requisites. Please click on the ? to the right for help.**

   OCN 201, OCN 201L, ZOOL 200, and MATH 115 or OCN 250, all with grade C or better; or consent.

8. **Co-requisites.**

9. **Recommended Preparation.**

   CHEM 161 and 161L

10. **Is this a cross-listed course? Please click on the ? to the right for help.**

    NO

11. **Reason for Proposal. Why is this course being proposed or modified? This question requires specific information as part of the explanation. Please click on the ? to the right for help.**

    The Sustainable Science Management (SSM) Bachelors in Applied Science degree is moving toward incorporating more natural science courses into the program. This course would be offered as an elective in the SSM Program and could be used as an elective for other degrees as well.

12. **Effective Semester and Year. For new or modified courses, the effective year is one year from the semester proposed. For example, if proposed in Spring 2012, the effective semester is Spring 2013. Please click on the ? to the right for help.**

    Fall 2014

13. **Grading Method. What grading methods may be used for this course? Please click on the ? to the right for help.**

    - Standard (Letter,Cr/NCr,Audit) (0)

14. **Is this course repeatable for credit? How often can this course be counted toward a degree or certificate? Please click on the ? to the right for help.**

    NO

15. **Course Student Learning Outcomes (SLOs). DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "COURSE LEARNING OUTCOMES" and enter in that screen. Please click on the ? to the right for help.**

Course SLO/Competency	Read and interpret geologic contour and topographic maps, marine navigational charts, and aerial photographs	Demonstrate and explain the operation of hand-held GPS devices, theodlyte, and associated GIS software to conduct coastal mapping	Identify and explain the origin of common coastal geologic features, rock types, and major coastal process in Hawai`i	Apply technical knowledge of relevant computer, laboratory, and field methods to identify solutions to real-world problems in coastal geology
Explain the relevance of coastal geology and processes to human needs, including those appropriate to Hawai`i	☑	☑	☑	☑
Evaluate, interpret, and summarize the basic principles of geology, and their context in relationship to other core sciences, to explain complex phenomena in coastal geology	☑	☑	☑	☑
Interpret geologic processes operating in coastal systems in order to effectively manage coastal resources.	☑	☑	☑	☑
Describe current coastal hazards and management strategies relevant to Hawai`i	☑	☑	☑	☑
Develop a research question, plan, and carry out an experiment concerning issues in the coastal environment, including hypothesis development, experimental design, statistical analysis and interpretation of data, and written and oral presentation.	☑	☑	☑	☑

Course SLO/PSLO	Examine the features and functions of multiple systems and how they are interconnected, and explains how one system can be optimized without degrading other systems or depleting natural resources;	Investigate, discover, and summarize federal, state, local, and industry codes, standards, laws, regulations, and guidelines;	Assess the feasibility of investing in sustainability measures using simple payback, return on investment, and life cycle costing techniques;	Describe the unique sustainability challenges faced by island communities;	Identify, outline, and illustrate the fundamentals of existing and emerging technologies in energy production, distribution, and management; water supply; wastewater treatment; and waste management; their applications, processes, and requirements;	Appraise, evaluate, summarize, and explain the economic, social, cultural, political, and scientific features that make a system, process, practice, or business sustainable and consolidate that information into a sustainability profile;	Propose and justify creative solutions to sustainability challenges that are scientifically sound; and	Demonstrate skills related to managing sustainability projects including defining scope, selecting achievable goals, evaluating ethical implications, working with diverse teams, making presentations, and preparing reports.
Explain the relevance of coastal geology and processes to human needs, including those appropriate to Hawai`i	☑	☑	☑	☑	☑	☑	☑	☑
Evaluate, interpret, and summarize the basic principles of geology, and their context in relationship to other core sciences, to	☑	☑		☑	☑	☑	☑	☑

explain complex phenomena in coastal geology								
Interpret geologic processes operating in coastal systems in order to effectively manage coastal resources.	☑	☑	☑	☑	☑	☑	☑	☑
Describe current coastal hazards and management strategies relevant to Hawai`i	☑	☑	☑	☑	☑	☑	☑	☑
Develop a research question, plan, and carry out an experiment concerning issues in the coastal environment, including hypothesis development, experimental design, statistical analysis and interpretation of data, and written and oral presentation.	☑	☑		☑	☑	☑	☑	☑

16. Course Competencies. DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "COURSE COMPETENCIES/ISSUES/SKILLS" and enter text in that screen. Course competencies are smaller, simpler tasks that connect to and facilitate the SLOs.

Competency
Read and interpret geologic contour and topographic maps, marine navigational charts, and aerial photographs
Demonstrate and explain the operation of hand-held GPS devices, theodlyte, and associated GIS software to conduct coastal mapping
Identify and explain the origin of common coastal geologic features, rock types, and major coastal process in Hawai`i
Apply technical knowledge of relevant computer, laboratory, and field methods to identify solutions to real-world problems in coastal geology

17. Recommended Course Content and Timeline. The course content facilitates the course competencies. Course content may be organized by weeks, units, topics or the like.

Content
Weeks 1-2: Physical structure of the coastline, coastal classification, use of field equipment
Week 3: Isotopes, orbital theory, quaternary dating
Weeks 4-6: Coastal processes, mapping, stratigraphy, sediment analysis
Week 7: Types of nearshore reefs and wetlands in Hawai`i

Weeks 8-9: Effects of global change and effects of sea-level rise on coastal environments
Weeks 10-11: Coastal erosion; field trips; shoreline mapping, sediment dating;
Weeks 12-13: Commercial and residential shoreline development, shoreline protection, beach replenishment
Weeks 14-15: Coastal hazards in Hawai`i and mitgation strategies
Week 16: Project presentations

18. Program Learning Outcomes. DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "PLOs" and enter text in that screen. Program Student Learning Outcomes (PLOs) supported by this course. If you are not a "program" use the Liberal Arts PLOs, view them by clicking on ? icon to the right.

Program SLO
Examine the features and functions of multiple systems and how they are interconnected, and explains how one system can be optimized without degrading other systems or depleting natural resources;
Investigate, discover, and summarize federal, state, local, and industry codes, standards, laws, regulations, and guidelines;
Assess the feasibility of investing in sustainability measures using simple payback, return on investment, and life cycle costing techniques;
Describe the unique sustainability challenges faced by island communities;
Identify, outline, and illustrate the fundamentals of existing and emerging technologies in energy production, distribution, and management; water supply; wastewater treatment; and waste management; their applications, processes, and requirements;
Appraise, evaluate, summarize, and explain the economic, social, cultural, political, and scientific features that make a system, process, practice, or business sustainable and consolidate that information into a sustainability profile;
Propose and justify creative solutions to sustainability challenges that are scientifically sound; and
Demonstrate skills related to managing sustainability projects including defining scope, selecting achievable goals, evaluating ethical implications, working with diverse teams, making presentations, and preparing reports.

19. College-wide Academic Student Learning Outcomes (CASLOs). FIRST, fill out the CASLO grid located in the UHMC tab above. Click on the HELP icon for tips on determining support for the CASLOs and indicate your choices below by clicking on the box in front of each supported CASLO. NOTE: Our campus does not use the Preparatory Level, Level 1 and Level 2 designations in the chart below.

	Creativity - Able to express originality through a variety of forms.
☑	**Critical Thinking** - Apply critical thinking skills to effectively address the challenges and solve problems. ☑ Preparatory Level
☑	**Information Retrieval and Technology** - Access, evaluate, and utilize information effectively, ethically, and responsibly. ☑ Preparatory Level
☑	**Oral Communication** - Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes. ☑ Preparatory Level
☑	**Quantitative Reasoning** - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantative reasoning accurately and appropriately. ☑ Preparatory Level
☑	**Written Communication** - Write effectively to convey ideas that meet the needs of specific audiences and purposes. ☑ Preparatory Level

GenED SLO

Critical Thinking - Apply critical thinking skills to effectively address the challenges and solve problems.
Information Retrieval and Technology - Access, evaluate, and utilize information effectively, ethically, and responsibly.
Oral Communication - Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.
Quantitative Reasoning - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantative reasoning accurately and appropriately.
Written Communication - Write effectively to convey ideas that meet the needs of specific audiences and purposes.

20. Linking. CLICK ON CHAIN LINK ICON IN UPPER RIGHT HAND CORNER TO BEGIN LINKING. Please click on the ? to the right for help.

21. Method(s) of delivery appropriate for this course. Please click on the ? to the right for help.

- Classroom/Lab (0)
- Hybrid (0)

22. Text and Materials, Reference Materials, and Auxiliary Materials. Please click on the ? to the right for help.

Articles selected from current geological journals

- G. Masselink & M. Hu. An Introduction to Coastal Processes and Geomorphology.. Hodder Arnold Publication., 2003, 0340764112.
- R. Davis Jr. & D. Fitzgerald. Beaches and Coasts.. Wiley-Blackwell, 2004, 0632043083.

23. Maximum enrollment. Please click on the ? to the right for help.

20

24. Particular room type requirement. Is this course restricted to particular room type? Please click on the ? to the right for help.

YES
`Ike Le`a 115, Marine Program Lab

25. Special scheduling considerations. Are there special scheduling considerations for this course? Please click on the ? to the right for help.

NO

26. Are special or additional resources needed for this course? Please click on the ? to the right for help.

NO

27. Does this course require special fees to be paid for by students? Please click on the ? to the right for help.

NO

28. Does this course change the number of required credit hours in a degree or certificate? Please click on the ? to the right for help.

NO

29. Course designation(s) for the Liberal Arts A.A. degree and/or for the college's other associate degrees. Please click on the ? to the right for help.

Degree	Program	Category
Associate in Arts:	Liberal Arts	LE - Elective
AS:	ANY	NS - Natural Science

AAS:	ANY	NS - Natural Science
BAS:	ANY	PE - Specialization/Program Electives
Developmental/ Remedial:		

Liberal Arts AA degree elective, 3 credits, DP

Note that Diversification categories are not listed in the pull-down menu for Liberal Arts

30. Course designation(s) for other colleges in the UH system.

UH System - DP

UH-Hilo - MARE 350: Coastal Methods and Analyses

31. Indicate the year and page # of UHMC catalog referred to. For new or modified courses, please indicate the catalog pages that need to be modified and provide a sheet outlining those changes.

2013-14
pages 16 or 17, SSM degree electives
pages 137, new course description in Oceanography

32. College-wide Academic Student Learner Outcomes (CASLOs). Please click on the HELP icon for more information.

Standard 1 - Written Communication **Write effectively to convey ideas that meet the needs of specific audiences and purposes.**		
Outcome 1.1 - Use writing to discover and articulate ideas.		2
Outcome 1.2 - Identify and analyze the audience and purpose for any intended communication.		2
Outcome 1.3 - Choose language, style, and organization appropriate to particular purposes and audiences.		2
Outcome 1.4 - Gather information and document sources appropriately.		2
Outcome 1.5 - Express a main idea as a thesis, hypothesis, or other appropriate statement.		3
Outcome 1.6 - Develop a main idea clearly and concisely with appropriate content.		2
Outcome 1.7 - Demonstrate a mastery of the conventions of writing, including grammar, spelling, and mechanics.		2
Outcome 1.8 - Demonstrate proficiency in revision and editing.		2
Outcome 1.9 - Develop a personal voice in written communication.		0
Standard 2 - Quantitative Reasoning **Synthesize and articulate information using appropriate mathematical methods to solve problems of quantative reasoning accurately and appropriately.**		
Outcome 2.1 - Apply numeric, graphic, and symbolic skills and other forms of quantitative reasoning accurately and appropriately.		3
Outcome 2.2 - Demonstrate mastery of mathematical concepts, skills, and applications, using technology when appropriate.		3
Outcome 2.3 - Communicate clearly and concisely the methods and results of quantitative problem solving.		3
Outcome 2.4 - Formulate and test hypotheses using numerical experimentation.		3
Outcome 2.5 - Define quantitative issues and problems, gather relevant information, analyze that information, and present results.		3
Outcome 2.6 - Assess the validity of statistical conclusions.		3

Standard 3 - Information Retrieval and Technology. **Access, evaluate, and utilize information effectively, ethically, and responsibly.**		
Outcome 3.1 - Use print and electronic information technology ethically and responsibly.		2
Outcome 3.2 - Demonstrate knowledge of basic vocabulary, concepts, and operations of information retrieval and technology.		2
Outcome 3.3 - Recognize, identify, and define an information need.		3
Outcome 3.4 - Access and retrieve information through print and electronic media, evaluating the accuracy and authenticity of that information.		3
Outcome 3.5 - Create, manage, organize, and communicate information through electronic media.		2
Outcome 3.6 - Recognize changing technologies and make informed choices about their appropriateness and use.		2
Standard 4 - Oral Communication **Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.**		
Outcome 4.1 - Identify and analyze the audience and purpose of any intended communication.		2
Outcome 4.2 - Gather, evaluate, select, and organize information for the communication.		3
Outcome 4.3 - Use language, techniques, and strategies appropriate to the audience and occasion.		2
Outcome 4.4 - Speak clearly and confidently, using the voice, volume, tone, and articulation appropriate to the audience and occasion.		2
Outcome 4.5 - Summarize, analyze, and evaluate oral communications and ask coherent questions as needed.		2
Outcome 4.6 - Use competent oral expression to initiate and sustain discussions.		2
Standard 5 - Critical Thinking **Apply critical thinking skills to effectively address the challenges and solve problems.**		
Outcome 5.1 - Identify and state problems, issues, arguments, and questions contained in a body of information.		3
Outcome 5.2 - Identify and analyze assumptions and underlying points of view relating to an issue or problem.		3
Outcome 5.3 - Formulate research questions that require descriptive and explanatory analyses.		3
Outcome 5.4 - Recognize and understand multiple modes of inquiry, including investigative methods based on observation and analysis.		3
Outcome 5.5 - Evaluate a problem, distinguishing between relevant and irrelevant facts, opinions, assumptions, issues, values, and biases through the use of appropriate evidence.		3
Outcome 5.6 - Apply problem-solving techniques and skills, including the rules of logic and logical sequence.		2
Outcome 5.7 - Synthesize information from various sources, drawing appropriate conclusions.		3
Outcome 5.8 - Communicate clearly and concisely the methods and results of logical reasoning.		3
Outcome 5.9 - Reflect upon and evaluate their thought processes, value system, and world views in comparison to those of others.		2
Standard 6 - Creativity **Able to express originality through a variety of forms.**		
Outcome 6.1: Generate responses to problems and challenges through intuition and non-linear thinking.		1
Outcome 6.2: Explore diverse approaches to solving a problem or addressing a challenge.		2
Outcome 6.3: Sustain engagement in activities without a preconceived purpose.		1

Outcome 6.4: Apply creative principles to discover and express new ideas.		2
Outcome 6.5: Demonstrate the ability to trust and follow one's instincts in the absence of external direction		1
Outcome 6.6: Build upon or adapt the ideas of others to create novel expressions or new solutions.		1

33. Additional Information