

## OCEAN115 : Oceanography

### General Information

|   |   |
|---|---|
| Author:                                     | <ul style="list-style-type: none"><li>Rachel Ridgway</li></ul>                                  |
| Attachments:                                | DE Addendum_OCEAN_115 COR_5:15:2017 CoDE_11:28:2023.pdf   |
| Course Code (CB01) :                        | OCEAN115  |
| Course Title (CB02) :                       | Oceanography  |
| Department:                                 | OCEAN   |
| Proposal Start:                             | Spring 2025   |
| TOP Code (CB03) :                           | (1919.00) Oceanography  |
| CIP Code:                                   | (40.0607) Oceanography, Chemical and Physical.  |
| SAM Code (CB09) :                           | Non-Occupational  |
| Distance Education Approved:                | Yes   |
| Will this course be taught asynchronously?: | No  |
| Course Control Number (CB00) :              | CCC000323918  |
| Curriculum Committee Approval Date:         | 09/25/2024  |
| Board of Trustees Approval Date:            | 11/19/2024  |
| Last Cyclical Review Date:                  | 09/25/2024  |
| Course Description and Course Note:         | OCEAN 115 is an introduction to the physical, chemical, and geological aspects of oceanography. |
| Justification:                              | Mandatory Revision  |
| Academic Career:                            | <ul style="list-style-type: none"><li>Credit</li></ul>  |
| Mode of Delivery:                           | No value  |
| Author:                                     | No value  |
| Course Family:                              | No value  |

### Academic Senate Discipline

|                       |   |
|-----------------------|---|
| Primary Discipline:   | <ul style="list-style-type: none"><li>Earth Science</li></ul> |
| Alternate Discipline: | No value  |
| Alternate Discipline: | No value  |

## Course Development

### Basic Skill Status (CB08)

Course is not a basic skills course.

Allow Students to Gain Credit by Exam/Challenge

### Course Special Class Status (CB13)

Course is not a special class.

### Pre-Collegiate Level (CB21)

Not applicable.

### Grading Basis

- Grade with Pass / No-Pass Option

### Course Support Course Status (CB26)

Course is not a support course

## General Education and C-ID

### General Education Status (CB25)

Not Applicable

### Transferability

Transferable to both UC and CSU

### Transferability Status

Approved

### IGETC Area

5A-Physical Science

### Area

Physical Science

### Status

Approved

### Approval Date

09/09/1991

### Comparable Course

No Comparable Course defined.

### CSU GE-Breadth Area

B1-Physical Science

### Area

Physical Science

### Status

Approved

### Approval Date

No value

### Comparable Course

No Comparable Course defined.

## Units and Hours

### Summary

#### Minimum Credit Units (CB07)

3

#### Maximum Credit Units (CB06)

3

#### Total Course In-Class (Contact) Hours

54

#### Total Course Out-of-Class Hours

108

#### Total Student Learning Hours

162

### Credit / Non-Credit Options

#### Course Type (CB04)

Credit - Degree Applicable

#### Noncredit Course Category (CB22)

Credit Course.

#### Noncredit Special Characteristics

No Value

#### Course Classification Code (CB11)

#### Funding Agency Category (CB23)

Cooperative Work Experience Education Status (CB10)

Credit Course.

Not Applicable.

Variable Credit Course

### Weekly Student Hours

|                  | In Class | Out of Class |
|------------------|----------|--------------|
| Lecture Hours    | 3        | 6            |
| Laboratory Hours | 0        | 0            |
| Studio Hours     | 0        | 0            |

### Course Student Hours

**Course Duration (Weeks)** 18

**Hours per unit divisor** 54

#### Course In-Class (Contact) Hours

Lecture 54

Laboratory 0

Studio 0

**Total** 54

#### Course Out-of-Class Hours

Lecture 108

Laboratory 0

Studio 0

**Total** 108

### Time Commitment Notes for Students

No value

### Units and Hours - Weekly Specialty Hours

| Activity Name | Type     | In Class | Out of Class |
|---------------|----------|----------|--------------|
| No Value      | No Value | No Value | No Value     |

### Pre-requisites, Co-requisites, Anti-requisites and Advisories

#### Advisory

ESL141 - Grammar And Writing IV

##### Objectives

- Compose a 400 to 450-word thesis-based essay which: (a) summarizes and cites appropriately a reading passage provided as a prompt, (b) includes a clear thesis statement, (c) uses evidence to support the thesis, (d) shows clear organization into an introduction, body, and conclusion, and (e) uses appropriate rhetorical modes such as comparison/contrast, cause/effect, and persuasion in order to support a thesis.

OR

#### Advisory

ABSE187 - Preparation for College Reading and Composition

##### Objectives

- Read, and analyze contemporary articles and stories to identify topic, thesis, support, transitions, conclusion, audience, and tone.
- Complete the writing process for a given prompt based on one or more source texts.
- Compose a well-organized essay with an introduction, body paragraphs, and conclusion.
- Recognize and correct errors, revise sentences or passages for word choice, sentence structure, and usage of mechanics errors.

## Entry Standards

| Entry Standards | Description |
|-----------------|-------------|
| No value        | No value    |

## Course Limitations

| Cross Listed or Equivalent Course | Description |
|-----------------------------------|-------------|
| No value                          | No value    |

## Specifications

| Methods of Instruction |                         |
|------------------------|-------------------------|
| Methods of Instruction | Lecture                 |
| Methods of Instruction | Demonstrations          |
| Methods of Instruction | Multimedia              |
| Methods of Instruction | Collaborative Learning  |
| Methods of Instruction | Discussion              |
| Methods of Instruction | Field Activites (Trips) |

## Out of Class Assignments

- Creation and analysis of graphs, figures, and data sets
- Online assignments
- Field trip reports
- Individual or group projects that create reports or other media

## Methods of Evaluation

## Rationale

|   |  |
|---|--|
| Other   | Instructor evaluation of attendance, participation in class, and participation in group work of any kind                               |
| Activity (answering journal prompt, group activity) | Evaluation of student work by peers  |
| Project/Portfolio                                   | Creation and analysis of graphs, figures, and data sets  |
| Exam/Quiz/Test                                      | Tests, with at least one midterm exam and one final exam—exams including essay style or short answer questions are strongly encouraged |
| Report  | Instructor evaluation of student-created reports or other media  |

## Textbook Rationale

No Value

## Textbooks

| Author            | Title   | Publisher | Date | ISBN       |
|-------------------|---|-----------|------|------------|
| Garrison, Tom S.  | Oceanography: An Invitation to Marine Science | Cengage   | 2022 | 0357452755 |
| Trujillo, Alan P. | Essentials of Oceanography                    | Pearson   | 2019 | 013489152X |

## Other Instructional Materials (i.e. OER, handouts)

No Value

## Materials Fee

No value

## Learning Outcomes and Objectives

### Course Objectives

Describe the processes which continue to shape the Earth, especially the oceanic physical environment.

Analyze global oceanographic problems from a geological perspective.

Apply physiochemical concepts to explain atmospheric and oceanic circulation patterns and their control on global climate.

### SLOs

Discuss the ocean as a major influence on weather and climate.

Expected Outcome Performance: 70.0

Describe the features and physiography of the ocean basin and relate to the processes that shaped them.

Expected Outcome Performance: 70.0

Diagram and describe the natural processes that affect coastal habitat and ways that human activities have impacted the coasts.

Expected Outcome Performance: 70.0

## Additional SLO Information

**Does this proposal include revisions that might improve student attainment of course learning outcomes?**

No

**Is this proposal submitted in response to learning outcomes assessment data?**

No

**If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.**

No Value

**SLO Evidence**

No Value

## Course Content

### Lecture Content

#### Introduction (4 hours)

- Importance of the Ocean Disciplines of Oceanography
- Early history of Oceanography
- Applications of Oceanography

#### Distribution of Land and Water (4 hours)

- Internal structure of the earth
- Mass and distribution of the hydrosphere
- Distribution of the hydrosphere
- Longitude and latitude
- Pacific Ocean
- Atlantic Ocean
- Arctic Ocean
- Indian Ocean
- Marginal Seas
- Age and origin of seawater
- Sea level
- Oceanographic generalizations

**Deep Ocean Floor (4 hours)**

- Bathymetric techniques and charts
- Hypsometric curve - elevations and depressions
- Ocean bottom topography
- Ocean basin features

**Sea Floor Spreading (4 hours)**

- Evidence for sea floor spreading
- Plate tectonics

**Coral Reefs and Atolls (2 hours)**

- Darwin's theory of atoll formation
- Guyots
- Influence of Pleistocene glaciation

**Deep Sea Sediments (4 hours)**

- Methods of sampling
- Classification of marine sediments
- Turbidity currents
- Mineral resources (petroleum, evaporites, metals)

**Water and its Properties (4 hours)**

- The polar bond
- States of water
- Latent heat of evaporation
- Latent heat of melting
- Polar ice

**Salt Water (4 hours)**

- The "living" soup
- Chlorinity and salinity determination
- Physical properties of seawater
- Dissolved gases
- Density and related stability of seawater
- Sea ice formation
- Resources from seawater

**The Open Ocean (4 hours)**

- Layered structure of the ocean
- Light
- Temperature
- Salinity
- Climatic regions of the ocean and land

**Ocean Currents (4 hours)**

- Surface currents
- Forces causing currents (prevailing winds, Coriolis effect)
- Ekman spiral
- Upwelling and Downwelling
- Geostrophic currents
- Thermohaline circulation
- Deep Ocean circulation
- Origin and distribution of water masses

**Waves and Tides (4 hours)**

- Ideal progressive waves (shallow water waves, deep water waves, wind waves, seismic sea waves)
- Ideal stationary waves (equilibrium theory of tides, dynamic theory of tides, standing waves and tides)
- Tides (types of tides, location of tide types, tidal currents)
- Tsunamis
- Internal waves

**The Coastal Ocean (4 hours)**

- Physical characteristics
- Salinity and temperature
- Currents
- Estuaries (estuarine circulation, types of estuaries, biologic productivity)

**Shoreline and Shoreline Processes (4 hours)**

- Primary coast
- Secondary coast
- Beaches - a river of sand
- Salt marshes
- Longshore transport
- Rip currents
- Storm surges
- Pollution

**Marine Biology (4 hours)**

- The sun-primary energy source
- Phytoplankton
- Zooplankton
- Benthos
- Ecologic niches (rocky beaches, reef communities, deep ocean benthos) Ocean productivity

**Total Hours = 54**

**Additional Information**

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

Yes

**GCC Major Requirements**

No Value

**GCC General Education Graduation Requirements**

Natural Sciences

**Repeatability**

Not Repeatable

**Justification (if repeatable was chosen above)**

No Value

**Resources**

Did you contact your departmental library liaison?

No

If yes, who is your departmental library liaison?

No Value

Did you contact the DEIA liaison?

No

**Were there any DEIA changes made to this outline?**

No

**If yes, in what areas were these changes made:**

No Value

**Will any additional resources be needed for this course? (Click all that apply)**

No Value

**If additional resources are needed, add a brief description and cost in the box provided.**

No Value