

Course Information

Semester & Year: Spring 2023

Course ID & Section #: BIOL 15, E4940

Instructor's name: Katie Terhaar

Day/Time: Lecture TTh 1:15-2:40pm

Lab F 1:20-4:30pm

Location: Lecture SCI 102; Lab SCI 102

Number of units: 4

Instructor Contact Information

Katie Terhaar

Office hours: by appointment

Phone number: (616) 502-0419 (Text works best)

Email address: katie-terhaar@redwoods.edu

Catalog Description

An introduction to ocean habitats and marine life. Topics covered include physical properties that define marine habitats, the diversity and ecology of marine organisms, and marine resource use and conservation. Labs and field trips focus on local habitats and the identification of local species.

Course Student Learning Outcomes (*from course outline of record*)

1. Recognize major marine habitats and analyze the physical, oceanographic and ecological characteristics that define them.
2. Describe the defining cellular characteristics and life history patterns of prokaryotic and eukaryotic organisms commonly encountered in marine habitats.
3. Hypothesize ecological and evolutionary mechanisms that are responsible for specific examples of marine organism adaptation.
4. Identify marine organisms to major taxon on sight, and be able to utilize resources such as dichotomous keys and field guides to identify organisms more specifically.
5. Keep an organized field/lab notebook that includes meaningful and accurate notes and data.

Accessibility

College of the Redwoods is committed to making reasonable accommodations for qualified students with disabilities. If you have a disability or believe you might benefit from disability-related services and accommodations, please contact your instructor or [Disability Services and Programs for Students](#) (DSPS). Students may make requests for alternative media by contacting DSPS based on their campus location:

- Eureka: 707-476-4280, student services building, 1st floor
- Del Norte: 707-465-2324, main building near library
- Klamath-Trinity: 530-625-4821 Ext 103

If you are taking online classes DSPS will email approved accommodations for distance education classes to your instructor. In the case of face-to-face instruction, please present your written accommodation request to your instructor at least one week before the needed accommodation so that necessary arrangements can be made. Last minute arrangements or post-test adjustments usually cannot be accommodated.

Student Support

Good information and clear communication about your needs will help you be successful. Please let your instructor know about any specific challenges or technology limitations that might affect your participation in class. College of the Redwoods wants every student to be successful

Admissions deadlines & enrollment policies

Spring 2023 Dates

- *Classes begin: 01/14/23*
- *Martin Luther King's Birthday (all campuses closed): 01/16/23*
- *Last day to add a class: 01/20/23*
- *Last day to drop without a W and receive a refund: 01/27/23*
- *Census date: 01/30/23 or 20% into class duration*
- *Last day to petition to file P/NP option: 02/10/23*
- *Lincoln's Birthday (all campuses closed): 02/17/23*
- *President's Day (all campuses closed): 02/20/23*
- *Last day to petition to graduate or apply for certificate: 03/02/23*
- *Spring Break (no classes): 03/13/23 – 03/18/23*
- *Last day for student-initiated W (no refund): 03/31/23*
- *Last day for faculty-initiated W (no refund): 03/31/23*
- *Final examinations: 05/06/23 – 05/12/23*
- *Commencement: 05/15/23*
- *Semester ends: 05/12/23*
- *Grades available for transcript release: approximately 05/26/23*

Academic dishonesty

In the academic community, the high value placed on truth implies a corresponding intolerance of scholastic dishonesty. In cases involving academic dishonesty, determination of the grade and of the student's status in the course is left primarily to the discretion of the faculty member. In such cases, where the instructor determines that a student has demonstrated academic dishonesty, the student

may receive a failing grade for the assignment and/or exam and may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct ([AP 5500](#)) is available on the College of the Redwoods website. Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the [College Catalog](#) and on the [College of the Redwoods website](#).

Disruptive behavior

Student behavior or speech that disrupts the instructional setting will not be tolerated. Disruptive conduct may include, but is not limited to: unwarranted interruptions; failure to adhere to instructor's directions; vulgar or obscene language; slurs or other forms of intimidation; and physically or verbally abusive behavior. In such cases where the instructor determines that a student has disrupted the educational process, a disruptive student may be temporarily removed from class. In addition, the student may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct ([AP 5500](#)) is available on the College of the Redwoods website. Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the [College Catalog](#) and on the [College of the Redwoods website](#).

Inclusive Language in the Classroom

College of the Redwoods aspires to create a learning environment in which all people feel comfortable in contributing their perspectives to classroom discussions. It therefore encourages instructors and students to use language that is inclusive and respectful.

Setting Your Preferred Name in Canvas

Students have the ability to have an alternate first name and pronouns to appear in Canvas. Contact [Admissions & Records](#) to request a change to your preferred first name and pronoun. Your Preferred Name will only be listed in Canvas. This does not change your legal name in our records. See the [Student Information Update form](#).

Canvas Information

Canvas Information

If using Canvas, include navigation instructions, tech support information, what Canvas is used for, and your expectation for how regularly students should check Canvas for your class.

Log into Canvas at [My CR Portal](#)

For help logging in to Canvas, visit [My CR Portal](#).

For help with Canvas once you're logged in, click on the Help icon on the left menu.

For tech help, email its@redwoods.edu or call 707-476-4160

Canvas online orientation workshop: [Canvas Student Orientation Course \(instructure.com\)](#)

Community College Student Health and Wellness

Resources, tools, and trainings regarding health, mental health, wellness, basic needs and more designed for California community college students, faculty and staff are available on the California Community Colleges [Health & Wellness website](#).

[Wellness Central](#) is a free online health and wellness resource that is available 24/7 in your space at your pace.

Students seeking to request a counseling appointment for academic advising or general counseling can email counseling@redwoods.edu.

Emergency procedures / Everbridge

College of the Redwoods has implemented an emergency alert system called Everbridge. In the event of an emergency on campus you will receive an alert through your personal email and/or phones. Registration is not necessary in order to receive emergency alerts. Check to make sure your contact information is up-to-date by logging into WebAdvisor <https://webadvisor.redwoods.edu> and selecting 'Students' then 'Academic Profile' then 'Current Information Update.'

Please contact Public Safety at 707-476-4112 or security@redwoods.edu if you have any questions. For more information see the [Redwoods Public Safety Page](#).

In an emergency that requires an evacuation of the building anywhere in the District:

- Be aware of all marked exits from your area and building
- Once outside, move to the nearest evacuation point outside your building
- Keep streets and walkways clear for emergency vehicles and personnel

Do not leave campus, unless it has been deemed safe by the campus authorities.

Del Norte Campus Emergency Procedures

Please review the [Crescent City campus emergency map](#) for campus evacuation sites, including the closest site to this classroom (posted by the exit of each room). For more information, see the [Redwoods Public Safety Page](#).

Eureka Campus Emergency Procedures

Please review the [campus emergency map](#) for evacuation sites, including the closest site to this classroom (posted by the exit of each room). For more information on Public Safety go to the [CR Police Department- Public Safety](#) It is the responsibility of College of the Redwoods to protect life and property from the effects of emergencies within its own jurisdiction.

In the event of an emergency:

1. Evaluate the impact the emergency has on your activity/operation and take appropriate action.
2. Dial 911, to notify local agency support such as law enforcement or fire services.
3. Notify Public Safety 707-476-4111 and inform them of the situation, with as much relevant information as possible.
4. Public Safety shall relay threat information, warnings, and alerts through the Everbridge emergency alert system, Public address system, and when possible, updates on the college website, to ensure the school community is notified.
5. Follow established procedures for the specific emergency as outlined in the College of the Redwoods Emergency Procedure Booklet, (evacuation to a safe zone, shelter in place, lockdown, assist others if possible, cooperate with First Responders, etc.).
6. If safe to do so, notify key administrators, departments, and personnel.

7. Do not leave campus, unless it is necessary to preserve life and/or has been deemed safe by the person in command.

Klamath Trinity Campus Emergency Procedures

Please review the responsibilities of, and procedures used by, the College of the Redwoods, Klamath-Trinity Instructional Site (KTIS) to communicate to faculty, staff, students and the general public during an emergency. It is the responsibility of College of the Redwoods, Klamath-Trinity Instructional Site (KTIS) to protect life and property from the effects of emergency situations within its own jurisdiction.

1. In the event of an emergency, communication shall be the responsibility of the district employees on scene.
 - a. Dial 911, to notify local agency support such as law enforcement or fire services.
 - b. If safe to do so, notify key administrators, departments, and personnel.
 - c. If safe to do so, personnel shall relay threat information, warnings, to ensure the school community is notified.
 - d. Contact 530-625-4821 to notify of situation.
 - e. Contact Hoopa Tribal Education Administration office 530-625-4413
 - f. Notify Public Safety 707-476-4111.
2. In the event of an emergency, the responsible district employee on scene will:
 - a. Follow established procedures for the specific emergency as outlined in the College of the Redwoods Emergency Procedure Booklet.
 - b. Lock all doors and turn off lights if in lockdown due to an active shooter or similar emergency.
 - c. Close all window curtains.
 - d. Get all inside to safe location Kitchen area is best internal location.
 - e. If a police officer or higher official arrives, they will assume command.
 - f. Wait until notice of all is clear before unlocking doors.
 - g. If safe to do so, move to the nearest evacuation point outside building (Pooky's Park), directly behind the Hoopa Tribal Education Building.
 - h. Do not leave site, unless it has been deemed safe by the person in command. Student Support Services (required for online classes)

Student Support Services

The following online resources are available to support your success as a student:

- [CR-Online](#) (Comprehensive information for online students)
- [Library Articles & Databases](#)
- [Canvas help and tutorials](#)
- [Online Student Handbook](#)
- [Online Tutoring Resources](#)

[Counseling](#) offers assistance to students in need of professional counseling services such as crisis counseling.

Learning Resource Center includes the following resources for students

- [Library Services](#) to promote information literacy and provide organized information resources.
- [Multicultural & Diversity Center](#)

- [Academic Support Center](#) – offers tutoring and test proctoring for CR students.
- [Student Tech Help](#) – provides students with assistance around a variety of tech problems.

Special programs are also available for eligible students include

- [Extended Opportunity Programs & Services \(EOPS\)](#) provides services to eligible income disadvantaged students including: textbook award, career academic and personal counseling, school supplies, transportation assistance, tutoring, laptop, calculator and textbook loans, priority registration, graduation cap and gown, workshops, and more!
- The TRiO Student Success Program provides eligible students with a variety of services including trips to 4-year universities, career assessments, and peer mentoring. Students can apply for the program in [Eureka](#) or in [Del Norte](#)
- The [Veteran's Resource Center](#) supports and facilitates academic success for Active Duty Military, Veterans and Dependents attending CR through relational advising, mentorship, transitional assistance, and coordination of military and Veteran-specific resources.
- [CalWORKS](#) – assists student parents with children under the age of 18, who are receiving cash assistance (TANF), to become self-sufficient.
- Klamath-Trinity students can contact the CR KT Office for specific information about student support services at 530-625-4821

Required Text

Textbook title: A Naturalist's Seashore Guide -common marine life of the northern California coast and adjacent shores-

Edition: Any you can find

Author: Brusca & Brusca

ISBN: 0-916-422-12-7

Recommended Text

Textbook title: Marine Biology: Function, Biodiversity, Ecology

Author: Jeffrey Levinton

Edition: [I will be working out of the 5th edition, but the 4th edition should suffice if that's all you can find or afford. You will have to adjust the pages of the suggested readings]

RESOURCES

- Steinbeck, Log from the Sea of Cortez, Penguin Classics Edition
- Any recommended field guide to intertidal invertebrates...to be discussed in class

OTHER MATERIALS

- *Field/ lab notebook*

Your lab notebook should be a three-ring 1 ½ in binder

Your field notes can be recorded in a Rite-in-the-Rain notebook. The size that comes in a 3-pack will be fine.

Do NOT use ink unless you invest in waterproof ink pens!

- *Appropriate clothing*

Field trips are typically at the beach, rain or shine, warm or cold. You should be prepared to get wet, muddy, sandy, etc. Warm windproof layers, waterproof boots, and a warm hat are ideal. Wetsuits/surf gear may come in handy as well. **WADERS WILL NOT BE ALLOWED FOR TIDEPOOLING.**

COURSE ORGANIZATION

Labs and Field Trips

On **Fridays** we will have both in-class Labs and out-in-the-world Field Trips. Labs are held in the classroom at 1:15PM, and usually involve close-up study of marine organisms. Field Trips require that we meet off-campus at the designated location and time, usually 1:30PM. See your schedule for details. You need to arrange your own transportation for these field trips and I encourage car-pooling with classmates. Come dressed for the outdoors...*plan* on rain, wind, cold, and wet feet!!! On Fridays when we have field trips, you'll *always* need your field notebook and your field guide

Lectures

Tuesday and **Thursday** lectures are aimed at introducing you to important principles of physical oceanography and marine organism ecology and evolution. We follow the text closely, though not always in order. Be sure to note the specific assigned reading details on the course schedule handout

Exceptions

In field biology, we are at the mercy of the natural world. Some events, like tides, are relatively predictable; others, like storms and beached whales, are not. Because of this, there will be exceptions and alterations to the neat and tidy schedule you've been given. *Please check your CR email regularly. Make sure I have good contact info for you...preferably both an email and a phone number.*

ASSESSMENT AND GRADING

If you receive 90-100% of total points you will receive an A; 80-89% earns a B; 70-79% earns a C; 60-69% earns a D; < 60% results in a grade of F.

ATTENDANCE

Attendance is required. If you miss a day, you miss a lot! Students with chronic patterns of absence fail. *It is your responsibility* to get notes from a classmate

Emergency Procedures

In the event of an earthquake, distance yourself from glass and high heavy objects and immediately duck and cover your head. Fight the urge to run out of the classroom...this is one of the WORST things you can do. When the shaking stops, move slowly and in orderly cautious fashion to an approved evacuation area (see evacuation routes posted in the classroom and listen to instructor directions). Do not go down into the parking lot until you have received confirmation that there is no tsunami hazard. If an earthquake occurs when we are at the beach we will evacuate to the highest ground possible as quickly as possible.

Safety in the Field

Marine field work can be hazardous.

The ocean is strong, unpredictable, and rogue waves do occur frequently. Beach rocks are slippery and sharp. There are marine organisms that sting or bite. Having said that, I haven't lost a student yet and I intend to keep it that way. Please understand that when you are at the beach by yourself you can follow your own rules, sense of comfort, and sense of adventure, but when you are on a class trip **I** determine what is safe for the group at that particular moment in time.

The following policies must be adhered to:

- *Dress appropriately; expect to be cold and wet.*
- *Always work with a buddy; never wander off alone.*
- *Do not go farther into the surf zone than I authorize.*
- *Always remain in sight and in ear contact of classmates.*

- *If you must turn your back on the ocean, make sure your buddy is watching out for you.*
- *Follow my instructions at all times.*
- *If you have read this far, email me a picture of a baby horseshoe crab and I will give you ten points extra credit*

Cheating

Truth matters! Cheating sucks! Academic dishonesty of any kind will result in an instant F on the assignment and a memo to the Vice President of Instruction that will become part of your permanent record. If you've never read the Student Code of Conduct see the link below. Many students don't realize that complicity...allowing or encouraging cheating...is as bad as being the one doing the cheating. Many students don't understand that using a Wikipedia answer, *even if you cite Wikipedia*, is plagiarism. It's far better to earn an F with integrity than pass the class through cheating.

<https://go.boarddocs.com/ca/redwoods/Board.nsf/Public?open&id=policies#>

MARINE BIOLOGY SPRING 2023 - SEMESTER SCHEDULE AND READING ASSIGNMENTS

Weekly Class Plan:

Tuesday: Lab quiz *THESE WILL BE IN LIEU OF A LAB EXAM*

Thursday: Paper Discussion

Friday: Lab-either in class or in the field. *Please check email as things can change depending on weather and other circumstances

Week 1

Reading: Syllabus, Levinton p. 6-10

Discussion Paper: Hopf et al., 2019: *Fake Science and the Knowledge Crisis: Ignorance can be Fatal*

Lecture: Introductions and Class Overview, Critical Thinking in Science

Lab: Critical Thinking in Science and Hypothesis Testing

Week 2

Reading: Levinton p. 46-74, Brusca & Brusca p. 8-24

Discussion Paper: Amodio et al., 2019: *Grow Smart and Die Young: Why Did Cephalopods Evolve Intelligence?* [Review]

Lecture: Natural Selection, Marine Ecology and Evolution

Lab: Natural Selection

Week 3

Reading: Brusca & Brusca p. 25-30

Discussion Paper: Reich et al., 2012: *Cultural traditions and the evolution of reproductive isolation: ecological speciation in killer whales?* [Review]

Lecture: Phylogeny, Sampling Populations and Methods

Lab: Microscopes and Dichotomous Keys

Group Project: Names of Group Members

Week 4

Reading: Levinton p. 147-155, p. 211-229, p. 258-266; Brusca & Brusca p. 168-175

Discussion Paper: Bak et al, 2020: *Technical challenges for offshore cultivation of kelp species: lessons learned and future directions*

Lecture: Plankton, Kelp & Marine Plants

Lab: Plankton, Kelp, and Marine Plants

Week 5

Reading: Levinton p. 273-276; Brusca & Brusca p. 39-58

Discussion Paper: TBD

Lecture: Animal Symmetry and Poriferans, Cnidarians and Ctenophores

Lab: Poriferans and Cnidarians

Week 6

Reading: Levinton p. 277-280, p. 159-160, p. 282-284; Brusca & Brusca p. 88-69, p. 97-134

Discussion Paper: TBD

Lecture: Worms, Mollusks

Lab: Worms and Mollusks

Group Project: Subject of Project

Week 7

Reading: Levinton p. 285-287, p. 291-293, p. 294; Brusca & Brusca p. 71-97, p. 133-149

Discussion Paper: TBD

Lecture: Arthropods, Echinoderms and Lesser Chordates

Lab: Arthropods, Echinoderms, and Lesser Chordates

Week 8

Reading: None

Discussion Paper: None

Lecture: **Exam Review, EXAM**

Lab: Field Trip: Cal-Poly Marine Lab (**Fee \$5**)

Week 9

Reading: Levinton p. 161-170, Brusca & Brusca p. 150-154

Discussion Paper: TBD

Lecture: Jawless Fish & Chondrichthyans, Bony Fish

Lab: Fish (Fish Print [**materials may be recommended for Fish Printing (i.e.: you may want to bring a T-shirt or hoodie to do the print on)**])

Week 10

Reading: Levinton p. 171-172, p. 179-186; Brusca & Brusca p. 155-169

Discussion Paper: TBD

Lecture: Marine Reptiles and Birds, Marine Mammals (**Guest Lecture? TBA**)

Lab: Field Trip: South Jetty (Bird/Marine Mammal Watching)

Group Project: Project Outline and 8 references

Week 11

Reading: Levinton p. 12-30

Discussion Paper: TBD

Lecture: Light Oceanography, Charting Activity

Lab: Field Trip: NOAA Weather Station-Woodley Island

Week 12

Reading: Levinton p. 317-333, p. 352-357, p. 365-369; Brusca & Brusca p. 5-7

Discussion Paper: TBD

Lecture: Beaches/Bays/Eel Grass, Rocky Intertidal

Lab: Field Trip: Beach-Centerville Beach

Week 13

Reading: Levinton p. 375-381, p. 339-340; ReefCheck Website

Discussion Paper: TBD

Lecture: Kelp Forests. **GUEST LECTURE: Brandi Easter**

Lab: Field Trip: Rocky Intertidal- Patrick's Point/Su-Meg State Park

Saturday Field Trip: Baker's Beach in Trinidad

Week 14

Reading: Levinton p. 349-351, p. 382-403, p. 414-432, p. 434-442

Discussion Paper: TBD

Lecture: Coral Reefs & Mangroves, Open Ocean/Deep Ocean/Polar Ocean

Lab: Field Trip: Fish Seining-Launcher Beach in Trinidad

Group Project: Final Approval and Questions Due

Saturday Field Trip: Reading Rock MPA [Carpooling *HIGHLY* encouraged]

Week 15

Reading: TBD

Discussion Paper: TBD

Lecture: Selected Culture and History with the Ocean. Local Indigenous Cultures and the Ocean

Lab: Field Trip- Lunch at Seascape Pier in Trinidad (**\$\$ Lunch**)-**Guest Lecturer:**

Saturday Field Trip: Devil's Gate-Beach Cleanup [Carpooling *HIGHLY* encouraged]

Week 16

Reading: Levinton p. 33-43, p. 504-528, p. 471-484

Discussion Paper: TBD

Lecture: Human Impacts, Resource Management and Conservation

Lab: Group Project Presentations

Lab Notebook Due

Finals Week

Final Lecture Exam Will Be CUMULATIVE

Date and time will be discussed in-class.

Grading

GRADES ON CANVAS MAY NOT BE UPDATED/ACCURATE-EMAIL ME IF YOU ARE CURIOUS ABOUT YOUR GRADE

GRADING

Lecture Midterm.....	100
Lecture Final.....	200
Lab Quizzes.....	250
Group Project.....	150
Research Paper Analysis.....	150
Field Note Entries/Lab Notebook	150
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TOTAL: 1000

You may have noticed that there are no LAB EXAMS. LAB QUIZZES will be taking the place of the Lab Exams. Lab Quizzes will take place at the beginning of class EACH TUESDAY

You will be graded on your contribution during our research paper discussion at the beginning of class EACH THURSDAY for the Research Paper Analysis

Your Lab/Field notebook will be graded on organization and thoroughness. You will be learning how to record data in the field, which will be a significant part of your grade.

You will NOT be able to make lab quizzes up or Research Paper Analyses, or turn them in late without a really good reason for missing them.

You are expected to have your own transportation to and from our field trips. Unfortunately, I cannot help arrange carpooling, but I highly encourage it.