948: OCEAN TECHNOLOGY CERTIFICATE

In Workflow

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5. Space Evaluation (david.jacobs@oregonstate.edu; libby.ramirez@oregonstate.edu)
6. 7 Day Review
7. Byron Crump (College of Earth, Ocean & Atmospheric Sciences, Professor) (byron.crump@oregonstate.edu)
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Approval Path

1. 2026-01-06T18:06:13Z
   Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for Curriculum Management Programs
2. 2026-01-12T07:19:05Z
   Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes): Approved for Catalog Coordinator
3. 2026-01-16T00:36:10Z
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4. 2026-01-20T23:06:06Z
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5. 2026-01-21T00:28:50Z
   David Jacobs (Capital Planning & Development, Manager - Space Allocation) (david.jacobs): Approved for Space Evaluation
6. 2026-01-30T01:08:58Z
   Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes): Approved for 7 Day Review
7. 2026-02-04T18:23:27Z
   Byron Crump (College of Earth, Ocean & Atmospheric Sciences, Professor) (byron.crump): Approved for crumpb
8. 2026-02-05T20:59:25Z
   Heath Henry (Academic Programs & Assessment, Assessment Coordinator) (heath.henry): Rollback to crumpb for Assessment Coordinator
9. 2026-02-09T22:17:39Z
   Byron Crump (College of Earth, Ocean & Atmospheric Sciences, Professor) (byron.crump): Approved for crumpb
10. 2026-02-09T22:20:44Z
    Heath Henry (Academic Programs & Assessment, Assessment Coordinator) (heath.henry): Approved for Assessment Coordinator
11. 2026-02-09T22:22:54Z
    Kaplan Yalcin (College of Earth, Ocean & Atmospheric Sciences, Senior Instructor II, and Curriculum Council Co-Chair) (kaplan.yalcin): Approved for 24 College Committee Approver
12. 2026-02-10T16:49:11Z
    Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for Curriculum Management Programs
13. 2026-02-12T21:39:30Z
    Byron Crump (College of Earth, Ocean & Atmospheric Sciences, Professor) (byron.crump): Approved for crumpb
14. 2026-02-23T18:02:34Z
    Jonathan Fram (College of Earth, Ocean & Atmospheric Sciences, Associate Professor) (jonathan.fram): Approved for Budgets and Fiscal Planning Committee Chair
15. 2026-02-24T17:22:09Z

Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for Curriculum Management Programs

16. 2026-03-03T21:12:16Z
Jim Coakley (College of Business, Associate Professor, and Curriculum Council Co-Chair) (Jim.Coakley): Approved for Curriculum Council Co-Chairs
17. 2026-03-20T20:05:09Z
Caitlin Calascibetta (Faculty Senate Office, Office Specialist 2) (caitlin.calascibetta): Approved for Executive Committee

New Program Proposal

Date Submitted: Tue, 16 Dec 2025 17:40:50 GMT

Viewing: : Ocean Technology Certificate

Last edit: 2026-02-24T17:19:58Z

Changes proposed by: crumpb

Proposal

Effective Term

Fall 2026

Justification

The proposed Ocean Technology certificate fills an unmet workforce development need in Oregon's higher education system. The Blue Economy encompasses sustainable, ocean-based industries that drive growth, quality jobs, and resilient ecosystems. Key sectors include offshore renewables, aquaculture, marine biotechnology, maritime transport, coastal tourism, and ocean data services. Despite Oregon's strengths in marine science and maritime operations, no institution offers a dedicated Ocean Technology credential. Current programs in marine science and vessel operations lack interdisciplinary technical training, spanning sensors, robotics, data analytics, systems engineering, and policy needed for emerging ocean industries and blue workforce development. Establishing an Ocean Technology credential would bridge this gap and accelerate Oregon's Blue Economy leadership.
This certificate is distinctive, integrating oceanography, engineering, and geospatial science into a practical, career-oriented curriculum that draws in OSU's strengths and aligns with its strategic goal of Prosperity Widely Shared. External drivers include a call for rapid industry growth and to address statewide workforce gaps identified by the Oregon Legislature. Internal drivers include OSU's leadership in ocean science and its strategic commitment to innovation and partnerships. By preparing graduates for applied technology careers, the program strengthens Oregon's competitiveness in the Blue Economy and opens pathways to employment in ocean-focused industries such as marine energy, aquaculture, ocean data services, and coastal restoration.

Primary Originator

Name
Byron Crump (College of Earth, Ocean & Atmospheric Sciences, Professor)

Liaisons

Academic Unit
Oceanography - Undergraduate (OC)
Fisheries, Wildlife & Conservation Sciences (FW)
Biological & Ecological Engineering (BEE)
College of Engineering - Undergraduate (ENGR, ESC, OP)
Naval Science (NS)
Integrative Biology (BI, IB, Z)
College of Liberal Arts (LA, MAST, SSCI)
Environmental Sciences - Undergraduate (ENSC)
Geography - Undergraduate (GEOG)
School of Electrical Engineering & Computer Science (AI, CS, ECE, SE)
School of Civil & Construction Engineering (ARE, CE, CCE, CEM, EMGT)
School of Mechanical, Industrial & Manufacturing Engineering (AAE, ESE, HEST, IE, MATS, ME, MFGE, MIME, ROB)
Statistics (DS, ST)

Program Information

Program Level

Undergraduate

Program Type
Certificate

Name
Ocean Technology Certificate

College
Earth, Ocean & Atmospheric Sciences (24)

Academic Unit
Oceanography

Is this program jointly administered?
No

Date the Early Alert was submitted for this proposal
Sept. 12, 2025

What degree types are available for this undergraduate program?
Certificate

Is this certificate available as standalone?
Yes

Do you want this standalone certificate to be eligible for financial aid?
Yes

Campus Locations
Corvallis

Is this program currently or planned to be offered in hybrid format?
No

Will this program lead to professional licensure in any U.S. state or territory?
No

Does this program use an alternative admissions process or have grade/GPA standards that are different from the university or college minimum?
No

Executive Summary

Executive Summary
The Ocean Technology certificate begins with a 14-15 credit core that provides training in Oceanography and Ocean technology, and hands-on experience with Oceanographic data analysis. Students then choose 12-13 elective credits to tailor their training towards specific career goals. Elective options include oceanography courses in coastal field methods, sensor-based data collection, and other ocean science technologies; engineering courses that provide a foundation in the design, construction, and repair of sensors and marine equipment; geography courses in global information systems, remote sensing, and satellite image analysis; and practical training in scientific diving, navigation, and seafaring skills.

HECC - Higher Education Coordinating Commission

Program Description

HECC Description
The Ocean Technology undergraduate certificate at Oregon State University provides interdisciplinary training in oceanography, engineering, and geospatial science, preparing students for careers in the Blue Economy. Through hands-on learning in ocean instrumentation, data analytics, and marine technology, the program equips graduates with applied skills to address workforce needs in sustainable ocean industries. Designed to complement existing majors, it fosters innovation and supports Oregon's leadership in marine science and ocean-based economic development.

Brief overview of the proposed program, including its disciplinary foundations and connections; program objectives; programmatic focus; degree, certificate, minor, and concentrations offered
Proposed Program Overview

The College of Earth, Ocean, and Atmospheric Sciences (CEOAS) at Oregon State University proposes an undergraduate certificate in Ocean Technology. This 27-credit program is grounded in the disciplinary foundations of oceanography, engineering, and geospatial science, and emphasizes the integration of ocean science with emerging technologies and data analytics. The program connects these disciplines to address workforce needs in the thriving Blue Economy.
Program Objectives and Focus
The certificate prepares students for careers in ocean technology by delivering applied skills in ocean instrumentation, sensor-based data collection, remote sensing, and marine equipment design and maintenance. Students develop interdisciplinary competencies to solve complex ocean challenges, engage professionally with maritime industries and coastal communities, and understand the societal implications of ocean technology applications. The program emphasizes experiential learning through field methods, real-world data analysis, and hands-on technical training that mirrors industry practices.
Credential Offered
The program will offer an undergraduate certificate in Ocean Technology. It is designed to complement existing OSU majors in oceanography, environmental science, marine studies, engineering, and geography. Students complete an 14-15 credit core in ocean science and technology, followed by 12-13 credits tailored to career goals, with electives in oceanography, engineering, geospatial analysis, and practical skills such as scientific diving and navigation.

Manner in which the program will be delivered, including program location (if offered outside of the main campus), course scheduling, and the use of technology (for both on-campus and off-campus delivery)

The Ocean Technology certificate will be delivered primarily on the Oregon State University main campus in Corvallis with some elective courses offered at the Hatfield Marine Science Center, leveraging CEOAS facilities and resources or via Ecampus. The program emphasizes experiential learning through hands-on labs, fieldwork, and access to oceanographic instruments and data platforms. Technology will play a central role in delivery: students will use common software for data analysis, remote sensing, and GIS applications. Field-based courses may include short-term intensive experiences on the Oregon coast, ensuring students gain practical experience in real-world marine environments.

Adequacy and quality of faculty delivering the program

Required courses for the Ocean Technology certificate will be taught by faculty from OSU's College of Earth, Ocean, and Atmospheric Sciences (CEOAS), nationally recognized for excellence in oceanography and marine science education. CEOAS faculty are leading researchers in oceanography, engineering, geospatial science, and marine technology, ensuring instruction is informed by cutting-edge research and strong industry partnerships. Elective courses will be offered by faculty in the College of Engineering and College of Agricultural Sciences, who bring expertise in field-based instruction, instrumentation, sensor development, and data analytics. This interdisciplinary team guarantees high-quality, applied learning supported by faculty commitment to experiential education, mentoring, and workforce development.

Adequacy of faculty resources – full-time, part-time, adjunct

The Ocean Technology certificate will be supported primarily by full-time faculty within the College of Earth, Ocean, and Atmospheric Sciences (CEOAS), ensuring continuity, depth of expertise, and strong integration with existing academic programs. CEOAS faculty include nationally recognized scholars in oceanography, engineering, and geospatial science who have extensive experience in teaching, research, and industry collaboration.

Other staff

The Ocean Technology certificate will be supported by CEOAS administrative staff for program coordination and academic advisors who help students integrate the certificate with their degree plans. Most importantly, CEOAS technical staff provide specialized expertise in maintaining and operating oceanographic instruments, sensors, and data systems essential for hands-on courses. Field and laboratory coordinators will facilitate experiential learning, including coastal fieldwork and equipment training. This strong technical support ensures students gain practical, industry-relevant skills and high-quality instruction throughout the program.

Adequacy of facilities, library, and other resources

The Ocean Technology certificate leverages OSU's advanced facilities within CEOAS, including state-of-the-art labs for oceanographic instrumentation, sensor calibration, and data analysis, as well as computing resources for GIS, remote sensing, and modeling. Students gain hands-on experience using specialized field equipment and vessels for coastal and ocean training. Additional support includes Ecampus infrastructure for on-line delivery and partnerships with initiatives like PacWave, providing exposure to emerging ocean technologies. These resources ensure rigorous academic preparation and practical, technology-driven training aligned with industry needs.

Relationship to Mission and Goals

Manner in which the proposed program supports the institution's mission, signature areas of focus, and strategic priorities

The Ocean Technology certificate supports OSU's mission and strategic goal of "Prosperity Widely Shared" by preparing students for careers in Oregon and the region's growing Blue Economy through applied technical training and experiential learning. It aligns with CEOAS imperatives by fostering Sustainable Culture through inclusive workforce development, Internal Synergy via interdisciplinary collaboration in oceanography, engineering, and geospatial science, and External Connectedness through partnerships with industry, community colleges, and initiatives like PacWave. By equipping graduates to address statewide needs in renewable energy, fisheries and aquaculture, and marine technology, the program strengthens Oregon's competitiveness and resilience while advancing OSU's leadership in marine science innovation.

Manner in which the proposed program contributes to institutional and statewide goals for student access and diversity, quality learning, research, knowledge creation and innovation, and economic and cultural support of Oregon and its communities

The Ocean Technology certificate advances OSU's and Oregon's goals for access and diversity by creating pathways for students into high-demand ocean-related careers. Through interdisciplinary, experiential training in oceanography, engineering, and geospatial science, the program fosters innovation and knowledge creation while leveraging OSU's research strengths and industry partnerships. Graduates will support Oregon's economic growth and cultural resilience by applying technology to sustainable ocean resource management and engaging communities of practice and place to promote ocean literacy and stewardship. This program strengthens the state's capacity to respond to social, economic, and environmental challenges while aligning with OSU's strategic priorities for prosperity and global leadership.

Manner in which the program meets regional or statewide needs and enhances the state's capacity to:

Improve educational attainment in the region and state:

The Ocean Technology certificate expands access to high-quality, career-oriented education by creating a new pathway into Oregon and the region's thriving Blue Economy - an area with no existing higher education credential in the state. Designed to complement OSU majors and serve students from diverse academic backgrounds, the program offers flexible delivery and hands-on learning that increase completion rates and workforce readiness. By integrating oceanography, engineering, and geospatial science, it equips graduates with technical and interdisciplinary skills for high-demand jobs, thereby raising postsecondary attainment and strengthening Oregon's capacity for innovation and economic resilience.

Respond effectively to social, economic, and environmental challenges and opportunities:

The Ocean Technology certificate strengthens Oregon's ability to address critical challenges and leverage opportunities in the Blue Economy. Economically, it prepares a skilled workforce for high-growth sectors such as offshore renewable energy, aquaculture, and marine technology, supporting statewide prosperity. Graduates will apply advanced tools for climate resilience, marine carbon removal and sustainable ocean resource management. The program fosters ocean literacy and collaboration with coastal communities, ensuring solutions respect cultural values and enhance community resilience. By integrating science, technology, and civic engagement, the program aligns with OSU's mission and HECC goals to build a thriving, sustainable future for Oregon.

Address civic and cultural demands of citizenship

The Ocean Technology certificate promotes civic responsibility and cultural awareness by preparing graduates to engage with ocean issues that affect communities, economies, and ecosystems. Students gain skills to inform policy and industry decisions with evidence-based insights, communicate marine science to diverse audiences, collaborate with coastal stakeholders to develop culturally respectful and resilient solutions, and integrate ethical stewardship into technology applications. Through interdisciplinary training and public engagement, the program strengthens Oregon's leadership in ocean governance and sustainable development while advancing OSU's mission and HECC goals for access, learning, and service.

Accreditation

Accrediting body or professional society that has established standards in the area in which the program lies, if applicable

not applicable

Ability of the program to meet professional accreditation standards. If the program does not or cannot meet those standards, the proposal should identify the area(s) in which it is deficient and indicate steps needed to qualify the program for accreditation and date by which it would be expected to be fully accredited

not applicable

If the proposed program is a graduate program in which the institution offers an undergraduate program, proposal should identify whether or not the undergraduate program is accredited and, if not, what would be required to qualify it for accreditation

not applicable

If accreditation is a goal, the proposal should identify the steps being taken to achieve accreditation. If the program is not seeking accreditation, the proposal should indicate why it is not

not applicable

Need

Anticipated fall term headcount, FTE enrollment, and expected degrees/certificates produced over each of the next five years

Year One:

Fall Term Headcount:

5

FTE Enrollment:

0.6

Expected Degrees/Certificates
0

Year Two:
Fall Term Headcount:
10
FTE Enrollment:
0.6
Expected Degrees/Certificates:
5

Year Three:
Fall Term Headcount:
25
FTE Enrollment:
0.6
Expected Degrees/Certificates
10

Year Four:
Fall Term Headcount:
35
FTE Enrollment:
0.6
Expected Degrees/Certificates
25

Year Five:
Fall Term Headcount:
45
FTE Enrollment:
0.6
Expected Degrees/Certificates
35

Characteristics of students to be served (resident/nonresident/international; traditional/ nontraditional; full-time/part-time, etc.)

The Ocean Technology certificate is designed for a diverse student population, including Oregon residents, nonresidents, and international students. It will primarily serve traditional undergraduates seeking to complement majors in oceanography, environmental science, engineering, marine studies, and geography and geospatial science, but will also be accessible to nontraditional learners interested in ocean-related careers. The program accommodates full-time and part-time enrollment.

Evidence of market demand

Oregon's Blue Economy is expanding rapidly, contributing nearly $20 billion to GDP and supporting 160,000 jobs with $8.3 billion in wages in Oregon and Washington (NOAA, 2024). A 2022 Oregon Legislative market analysis identified workforce gaps in offshore renewable energy, aquaculture, marine biotechnology, and subsea technologies, emphasizing the need for technician- and technologist-level training. Industry reports consistently note shortages of workers with interdisciplinary technical skills in ocean instrumentation, data analytics, and marine equipment maintenance. The Ocean Technology certificate directly addresses these gaps, preparing graduates for high-demand careers in ocean energy, fisheries, coastal restoration, and marine technology—sectors critical to Oregon's economic growth and resilience.

If the program's location is shared with another similar Oregon public university program, the proposal should provide externally validated evidence of need (e.g., surveys, focus groups, documented requests, occupational/employment statistics and forecasts)

Surveys, documented employer requests, and advisory board feedback support the need for technician-level training. No existing program meets this interdisciplinary technical need and the Ocean Technology certificate fills a critical workforce gap in Oregon's Blue Economy.

Estimate the prospects for success of program graduates (employment or graduate school) and consideration of licensure, if appropriate. What are the expected career paths for students in this program?

Graduates of the Ocean Technology certificate program will have strong employment prospects due to rapid growth in Oregon's Blue Economy. Industry reports and legislative analyses identify critical workforce gaps in offshore renewable energy, aquaculture,

maritime transport, oil, gas and mining, marine biotechnology, and subsea technologies - fields requiring the technical and interdisciplinary skills this program provides. Expected career paths include roles in ocean energy development, fisheries support, coastal restoration, marine equipment design and maintenance, remote sensing, and data analytics. The certificate also enhances preparation for graduate study in oceanography, marine engineering, and environmental science.

Outcomes and Quality Assessment

Expected learning outcomes of the program

• Apply Ocean Science and Technology Skills. Certificate holders will use marine instrumentation, field and lab methods, and data analysis tools to collect, interpret, and communicate information about ocean and coastal system.
• Integrate Interdisciplinary Knowledge to Inform Ocean Solutions. Certificate holders will apply concepts from ocean science, engineering, data science, and emerging technologies to support decision makers, managers and ocean resource users
• Connect Ocean Technology to Society and Careers. Certificate holders will recognize how ocean technology training and skills relate to ocean literacy, science communication, workforce needs, and opportunities for lifelong learning.

Methods by which the learning outcomes will be assessed and used to improve curriculum and instruction

Apply Ocean Science and Technology Skills. Assessment will apply the Inquiry and Analysis and Quantitative Literacy rubrics to evaluate students' ability to collect, interpret, and communicate data from marine instrumentation and fieldwork.
Integrate Interdisciplinary Knowledge to Inform Ocean Solutions. Assessment will apply the Integrative Learning rubric to assess how well students synthesize concepts from ocean science, engineering, and data science to propose solutions for real-world challenges.
Connect Ocean Technology to Society and Careers. Assessment will apply the Civic Engagement and Oral/Written Communication rubrics to measure students' ability to relate technical skills to societal needs, communicate effectively, and demonstrate awareness of workforce and cultural contexts.

Nature and level of research and/or scholarly work expected of program faculty; indicators of success in those areas

Faculty delivering the Ocean Technology certificate are expected to maintain active research programs in oceanography, marine technology, engineering, and geospatial science, consistent with OSU's status as a top-tier research university. Scholarly work will include peer-reviewed publications, externally funded research projects, and industry partnerships that advance innovation in ocean instrumentation, remote sensing, and data analytics. Indicators of success include sustained grant activity, collaborative projects with marine industries, contributions to OSU's signature research areas, and integration of research into experiential learning for students. Faculty engagement in national and international conferences, technology development, and workforce initiatives will further demonstrate impact and alignment with institutional and statewide goals.

Program Integration and Collaboration

Closely related programs in this or other Oregon colleges and universities

No Oregon institution currently offers a certificate in Ocean Technology. Related programs include Aquarium Science at Oregon Coast Community College, Maritime Science: Vessel Operations at Clatsop Community College, Marine Biology at Southwestern Oregon Community College and University of Oregon, and Welding Technology for Ship Repair at Oregon Coast Community College. These programs focus on biology or vessel operations and do not provide wider interdisciplinary technical training in ocean instrumentation, data analytics, and marine technology. The proposed certificate complements these offerings by creating a pathway for students to gain applied skills for technician- and technologist-level roles, while leveraging OSU's research strengths and industry partnerships to enhance statewide workforce development.

Ways in which the program complements other similar programs in other Oregon institutions and other related programs at this institution. Proposal should identify the potential for collaboration

The Ocean Technology certificate complements related programs at Oregon institutions by filling a gap in technical, interdisciplinary training for ocean careers. While community colleges offer programs in Aquarium Science, Maritime Vessel Operations, and Marine Biology, none provide applied skills in ocean instrumentation, sensor systems, and geospatial technologies. At OSU, the certificate strengthens connections with majors in Oceanography, Environmental Science, Engineering, and Geography and Geospatial Science, creating cross-campus collaboration opportunities. Potential partnerships include shared field courses, joint research projects, and industry internships with community colleges and marine industry stakeholders, building a statewide network for workforce development in the Blue Economy.

If applicable, proposal should state why this program may not be collaborating with existing similar programs

not applicable

Potential impacts on other programs

The Ocean Technology certificate is designed to complement, not compete with, existing OSU programs and those at other Oregon institutions. It enhances majors in Oceanography, Engineering, Marine Biology, Marine Studies, Geography and Geospatial Science, and Fisheries, Wildlife, and Conservation Science by providing applied technical skills, creating interdisciplinary experiential learning opportunities, all without duplicating curricula. Community college programs in Aquarium Science, Maritime Vessel Operations, and Marine Biology remain distinct, as they focus on biology or vessel operations rather than ocean technology. The certificate may increase enrollment in related OSU courses and foster collaboration through shared field experiences and industry partnerships, strengthening statewide educational pathways rather than displacing existing programs.

Learning Outcomes

This section is overseen by the Assessment team within the Office of Academic Affairs. The Assessment team are in the proposal workflow to review all changes. No changes can be made without their approval.

Are you adding, removing or changing learning outcomes in this proposal?

No

Are the learning outcomes required for an accrediting organization?

No

List the learning outcomes (this will display on the Learning Outcomes tab in the Catalog)

	Upon successful completion of the program, students will be able to:
1	• Apply ocean science and technology skills, including marine instrumentation, field and lab methods, and data analysis tools to collect, interpret, and communicate information about ocean and coastal system.
2	• Integrate interdisciplinary knowledge such as ocean science, engineering, data science, and emerging technologies to inform ocean solutions that support decision makers, managers and ocean resource users.
3	• Evaluate the societal and career relevance of ocean technology skills, including their roles in promoting ocean literacy, supporting workforce needs, enhancing science communication, and fostering lifelong learning

Learning Outcome

Apply Ocean Science and Technology Skills. Certificate holders will use marine instrumentation, field and lab methods, and data analysis tools to collect, interpret, and communicate information about ocean and coastal system.

Expected reporting year (all outcomes must be assessed within a 2 year period)

Year 1

List courses where this outcome will be taught

OC 201, OC 301, OC 296, OC 390, OC 396, OC 490, OEAS 497, OEAS 498

Assessment measures used to assess the outcome. Label each measure as either direct (D) or indirect (I)

Foundational content is taught in core coursework. (D) Students in OC 390 are quizzed weekly on their knowledge of ocean technology. (D) Student in OC 301 are evaluated on their use of data analysis tools.

Benchmarks of success used to determine if the outcome has been satisfactorily met by students

80% of students in OC 390 will achieve an average grade of 70% or better on their weekly quizzes. 80% of students in OC 301 will achieve a grade of 70% or better on their final data analysis project.

Learning Outcome

Integrate Interdisciplinary Knowledge to Inform Ocean Solutions. Certificate holders will apply concepts from ocean science, engineering, data science, and emerging technologies to support decision makers, managers and ocean resource users.

Expected reporting year (all outcomes must be assessed within a 2 year period)

Year 2

List courses where this outcome will be taught

OC 390, OC 396, OC 490, OEAS 497, OEAS 498

Assessment measures used to assess the outcome. Label each measure as either direct (D) or indirect (I)

(D) Students in OC 390 are evaluated on class discussions concerning the practical application of ocean technologies. (D) Students in OC 396 and OC 490 are evaluated on written reports describing application of ocean technology.

Benchmarks of success used to determine if the outcome has been satisfactorily met by students

80% of students in OC 390 will achieve an average grade of 70% or better on class discussions concerning the practical application of ocean technologies. 80% of students in OC 396 and OC 490 will achieve an average grade of 70% or better on written reports describing application of ocean technology.

Learning Outcome

Connect Ocean Technology to Society and Careers. Certificate holders will recognize how ocean technology training and skills relate to ocean literacy, science communication, workforce needs, and opportunities for lifelong learning.

Expected reporting year (all outcomes must be assessed within a 2 year period)

Year 2

List courses where this outcome will be taught

OC 201, OC 390, OC 396, OC 490, OEAS 497, OEAS 498

Assessment measures used to assess the outcome. Label each measure as either direct (D) or indirect (I)

(D) Students in OC 390 are evaluated on development of a personalized career plan in ocean technology and on professional communication with industry and academic mentors in marine technology sectors.

Benchmarks of success used to determine if the outcome has been satisfactorily met by students

80% of students in OC 390 will achieve an average grade of 70% or better their final personalized career plan.

Information for the Catalog

How many total credits are required for completion of this program?

27

Catalog Description (this will display on the Overview tab in the Catalog)

The Ocean Technology undergraduate certificate program provides students with specialized training that integrates oceanography, engineering, technology, and data analysis. The certificate is designed to equip students with knowledge and applied skills required by employers across the Blue Economy.

Requirements (this will display on the Requirements tab in the Catalog and be coded into MyDegrees)

Code	Title	Credits
Required Core		
OC 201	+*OCEANOGRAPHY	4
OC 301	OCEANOGRAPHIC DATA ANALYSIS	4
OC 390	OCEAN TECHNOLOGY PRINCIPLES & PATHWAYS	3
Select 3-4 credits from the following practical courses:		3-4
OC 295 & OC 296	INTRODUCTION TO FIELD OCEANOGRAPHY - LAND and INTRODUCTION TO FIELD OCEANOGRAPHY - SEA	
OC 490	OCEAN INSTRUMENTATION, SENSORS AND PLATFORMS	
OEAS 497	+RESEARCH IN EARTH AND ENVIRONMENTAL SCIENCES	
OEAS 498	+INTERNSHIP IN EARTH AND ENVIRONMENTAL SCIENCES	
Electives		
Select any 12-13 credits from the following categories:		12-13
OC 490	OCEAN INSTRUMENTATION, SENSORS AND PLATFORMS (if not used above)	
OEAS 497	+RESEARCH IN EARTH AND ENVIRONMENTAL SCIENCES (if not used above)	
OEAS 498	+INTERNSHIP IN EARTH AND ENVIRONMENTAL SCIENCES (if not used above)	
ECE 201	DC AND TRANSIENT CIRCUITS	
ECE 202	AC AND FREQUENCY DEPENDENT CIRCUITS	
ECE 320	ELECTRONIC CIRCUIT DESIGN I	
ECE 323	ELECTRONICS II	
CE 311	FLUID MECHANICS	
ENGR 211	STATICS	
ENGR 212	DYNAMICS	
or ME 217	MECHANICAL ENGINEERING DYNAMICS	
ENGR 213	STRENGTH OF MATERIALS	
GEOG 360	GISCIENCE I: GEOGRAPHIC INFORMATION SYSTEMS AND THEORY	
GEOG 380	REMOTE SENSING: PRINCIPLES AND APPLICATIONS	
GEOG 481	SATELLITE IMAGE ANALYSIS	
FW 430	INTRODUCTION TO SCIENTIFIC DIVING	
NS 311	NAVIGATION	
Total Credits		**27**

* Baccalaureate Core course. Applies to general education requirements for undergraduate students in a catalog year up to 2024-2025

+ Core Education course. Applies to general education requirements for undergraduate students in catalog year 2025-2026 and beyond

Letters of Support

External Letters of Support

Ocean_Technology_Certificate_Letter_of_support_Seatrec - signed.pdf
Port_of_Newport_OSU_SupportLtr_12_12_25.pdf

Accessibility Form

Accessibility Guidelines

I have reviewed the listed documents

Faculty Guidelines

I have reviewed the listed documents

Digital Accessibility Guidelines

I have reviewed the listed documents

By submitting this form, we affirm that we have reviewed the listed documents and will apply a good faith effort to ensure accessibility in curricular design, delivery, and supporting information.

Library Evaluation

Will this program require the creation of new courses?

No

Faculty CVs

I will provide individual CVs if requested by Faculty Senate Curriculum Council

Acknowledge

Enter faculty below: (click the green plus button to add faculty members)

Faculty Name	Academic Home	Highest Degree	Position Title	Area of Expertise/ Interest	Role Within Program
Byron C. Crump	CEOAS	Ph.D.	Professor	Biological Oceanography	Director
Ed Dever	CEOAS	Ph.D.	Professor	Physical Oceanography	Instructor
Emily Eidam	CEOAS	Ph.D.	Associate Professor	Geological Oceanography	Instructor
Burke Hales	CEOAS	Ph.D.	Professor	Chemical Oceanography	Instructor
Michael Harte	CEOAS	Ph.D.	Professor	Marine Geography	Instructor
Kelsey Lane	CEOAS	Ph.D.	Instructor	Oceanography	Instructor

Budget Information

Budget Worksheet and Narrative

Budget_Narrative_Marine_Technology_Certificate.docx
Ocean Technology Certificate Budget Worksheet.xlsx

Reviewer Comments

Belinda Sykes (Office of the Registrar, Catalog Curriculum Coordinator) (belinda.sykes) (2026-01-12T07:18:22Z): Hatfield Marine Science Center removed as a campus location. HMSC is a teaching location only; students cannot declare it as their campus.

Erica Fleishman (College of Earth, Ocean Atmospheric Sciences, Professor) (erica.fleishman) (Wed, 21 Jan 2026 17:52:23 GMT): This looks great to me -- no concerns

Tyler Mc Fadden (Environmental Sciences, Interim Director and Instructor) (tyler.mcfadden) (Wed, 21 Jan 2026 19:06:41 GMT): No concerns. Looks like a great program!

Brock Mc Leod (Integrative Biology, Coordinator of Undergraduate Success Engagement) (Brock.McLeod) (Thu, 22 Jan 2026 17:51:56 GMT): No concerns.

Bruce Dugger (Fisheries, Wildlife Conservation Sciences, Associate Department Head) (bruce.dugger) (2026-01-25T22:13:21Z): No concerns.

Jack Istok (School of Civil Construction Engineering, School Head) (jack.istok) (2026-01-26T16:43:07Z): no objections

Yvette Spitz (College of Earth, Ocean Atmospheric Sciences, Professor) (yvette.spitz) (2026-01-29T17:51:14Z): No concerns

Byron Crump (College of Earth, Ocean Atmospheric Sciences, Professor) (byron.crump) (2026-02-03T19:10:32Z): Change "practicum" to "practical"

Heath Henry (Academic Programs Assessment, Assessment Coordinator) (heath.henry) (2026-02-05T20:59:25Z): Rollback: "Connect" is not an easily measurable verb and should be replaced. The learning outcomes need to be a single sentence that starts with a measurable action verb. Most of the outcomes are well written and specific, so it should just be a matter of combining the two existing sentences. For example: 1. Apply Ocean Science and Technology Skills, including marine instrumentation, field and lab methods, and data analysis tools, to collect, interpret, and communicate information about ocean and coastal systems. 2. Integrate Interdisciplinary Knowledge, such as ocean science, engineering, data science, and emerging technologies, to Inform Ocean Solutions that support decision makers, managers and ocean resource users. 3. Relate how ocean technology training and skills relate to ocean literacy, science communication, workforce needs, and opportunities for lifelong learning.

Heath Henry (Academic Programs Assessment, Assessment Coordinator) (heath.henry) (2026-02-09T22:20:42Z): Thank you for making the changes. The learning outcomes are now well-written and measurable.

Key: 948