# 803: MARINE MAMMAL GRADUATE CERTIFICATE

## In Workflow

1. APA Coordinator Programs (APA Coordinator Programs@oregonstate.edu)
2. Catalog Coordinator (belinda.sykes@oregonstate.edu)
3. 01 Dean Designee (ricardo.matagonzalez@oregonstate.edu)
4. Provost Designee (alix.gitelman@oregonstate.edu)
5. FWCS Head (selina.heppell@oregonstate.edu)
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7. Space Evaluation (david.jacobs@oregonstate.edu; libby.ramirez@oregonstate.edu)
8. 14 Day Review (none)
9. Renee Albertson (Fisheries, Wildlife & Conservation Sciences, Instructor) (renee.albertson@oregonstate.edu)
10. Graduate Assessment (kristin.nagycatz@oregonstate.edu)
11. 01 College Committee Approver (ricardo.matagonzalez@oregonstate.edu)
12. APA Coordinator Programs (APA Coordinator Programs@oregonstate.edu)
13. Renee Albertson (Fisheries, Wildlife & Conservation Sciences, Instructor) (renee.albertson@oregonstate.edu)
14. Budgets and Fiscal Planning Committee Chair (jeff.luck@oregonstate.edu)
15. Graduate Council Co-Chairs (john.becker-blease@bus.oregonstate.edu)
16. Curriculum Management Programs (janice.nave-abele@oregonstate.edu)
17. Curriculum Council Co-Chairs (iannie@oregonstate.edu; jim.coakley@oregonstate.edu)
18. Executive Committee (vickie.nunnemaker@oregonstate.edu)
19. Faculty Senate (vickie.nunnemaker@oregonstate.edu)
20. NWCCU (janice.nave-abele@oregonstate.edu)
21. Catalog Coordinator (belinda.sykes@oregonstate.edu)
22. Graduate Curriculum Tables (jared.thomas@oregonstate.edu; john.henry@oregonstate.edu)
23. Catalog Coordinator (belinda.sykes@oregonstate.edu)

## Approval Path

1. Tue, 07 Feb 2023 18:36:55 GMT
   Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for APA Coordinator Programs
2. Wed, 15 Feb 2023 06:42:34 GMT
   Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes): Approved for Catalog Coordinator
3. Fri, 24 Feb 2023 19:54:27 GMT
   Ricardo Mata Gonzalez (Animal & Rangeland Sciences, Associate Professor) (ricardo.matagonzalez): Approved for 01 Dean Designee
4. Fri, 24 Feb 2023 20:31:03 GMT
   Alix Gitelman (Vice Provost for Academic Affairs) (alix.gitelman): Approved for Provost Designee
5. Fri, 24 Feb 2023 20:34:32 GMT
   Selina Heppell (Fisheries, Wildlife & Conservation Sciences, Department Head, and Faculty Senate President) (selina.heppell): Approved for FWCS Head
6. Tue, 14 Mar 2023 20:32:22 GMT
   Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for APA Coordinator Programs
7. Tue, 14 Mar 2023 21:08:49 GMT
   David Jacobs (Capital Planning & Development, Manager - Space Allocation) (david.jacobs): Approved for Space Evaluation
8. Wed, 29 Mar 2023 09:28:42 GMT
   0/1 votes cast.
   Yes: 0% No: 0%
   Approved for 14 Day Review
9. Wed, 19 Apr 2023 16:23:26 GMT
   Renee Albertson (Fisheries, Wildlife & Conservation Sciences, Instructor) (renee.albertson): Approved for gibbg
10. Wed, 19 Apr 2023 21:28:36 GMT
    Kristin Nagy Catz (OSU Director of Assessment) (kristin.nagycatz): Rollback to gibbg for Graduate Assessment
11. Thu, 20 Apr 2023 22:06:09 GMT
    Renee Albertson (Fisheries, Wildlife & Conservation Sciences, Instructor) (renee.albertson): Approved for gibbg
12. Fri, 21 Apr 2023 13:27:08 GMT
    Kristin Nagy Catz (OSU Director of Assessment) (kristin.nagycatz): Rollback to gibbg for Graduate Assessment
13. Fri, 21 Apr 2023 15:45:01 GMT

Renee Albertson (Fisheries, Wildlife & Conservation Sciences, Instructor) (renee.albertson): Approved for gibbg

14. Fri, 21 Apr 2023 17:13:52 GMT
    Kristin Nagy Catz (OSU Director of Assessment) (kristin.nagycatz): Rollback to gibbg for Graduate Assessment
15. Fri, 21 Apr 2023 18:35:10 GMT
    Renee Albertson (Fisheries, Wildlife & Conservation Sciences, Instructor) (renee.albertson): Approved for gibbg
16. Fri, 21 Apr 2023 18:40:25 GMT
    Kristin Nagy Catz (OSU Director of Assessment) (kristin.nagycatz): Approved for Graduate Assessment
17. Wed, 26 Apr 2023 17:06:29 GMT
    Ricardo Mata Gonzalez (Animal & Rangeland Sciences, Associate Professor) (ricardo.matagonzalez): Approved for 01 College Committee Approver
18. Wed, 26 Apr 2023 17:28:23 GMT
    Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for APA Coordinator Programs
19. Wed, 26 Apr 2023 19:14:53 GMT
    Renee Albertson (Fisheries, Wildlife & Conservation Sciences, Instructor) (renee.albertson): Approved for gibbg
20. Tue, 16 May 2023 15:07:49 GMT
    Frank Chaplen (Biological & Ecological Engineering, Associate Professor) (frank.chaplen): Rollback to gibbg for Budgets and Fiscal Planning Committee Chair
21. Wed, 24 May 2023 21:37:47 GMT
    Renee Albertson (Fisheries, Wildlife & Conservation Sciences, Instructor) (renee.albertson): Approved for gibbg
22. Mon, 02 Oct 2023 22:37:35 GMT
    Jeffrey Luck (School of Social & Behavioral Health Sciences, Associate Professor, and Budgets & Fiscal Planning Committee Chair) (jeff.luck): Approved for Budgets and Fiscal Planning Committee Chair
23. Mon, 16 Oct 2023 19:09:44 GMT
    John Becker-Blease (College of Business, Associate Dean of Graduate Programs, and Graduate Council Chair) (john.becker-blease): Approved for Graduate Council Co-Chairs
24. Mon, 16 Oct 2023 19:12:21 GMT
    Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for Curriculum Management Programs
25. Wed, 22 Nov 2023 14:43:48 GMT
    Jim Coakley (College of Business, Associate Professor and Curriculum Council Co-Chair) (jim.coakley): Approved for Curriculum Council Co-Chairs
26. Wed, 29 Nov 2023 06:35:47 GMT
    Vickie Nunnemaker (Faculty Senate, Special Assistant to the Faculty Senate President) (vickie.nunnemaker): Approved for Executive Committee

## New Program Proposal

Date Submitted: Wed, 25 Jan 2023 18:00:33 GMT

## Viewing: : Marine Mammal Graduate Certificate

## Last edit: Mon, 20 Nov 2023 20:33:57 GMT

Changes proposed by: gibbg

## Proposal

**Effective Term**

Fall 2023

**Justification**

This certificate highlights the expertise at OSU's marine campus, Hatfield Marine Science Center, and emphasizes the Oregon coast as a natural laboratory and study area, with a focus on developing skills that are transferable to a global scale. The program allows flexibility for OSU's continually changing student body by providing hybrid experience that limits the amount of time away from home/work responsibilities, yet still provides experiential learning in the marine environment.

Much of Oregon's coastal economy (and coastal economies around the world) is associated with commercial and recreational fisheries, ecotourism, and development of renewable energy (wind and wave). Marine mammals are deeply entwined with these economies in positive (e.g., whale watching) and problematic (e.g., entanglement in fishing gear, competition for commercially fished species, sea lion removal from dams, potential impacts from extraction of renewable energy) ways. There is a growing need for experts in marine mammalogy to engage in these issues and provide solutions that embrace humans as a critical part of marine ecosystems, with sustainability and ocean health as the ultimate goal. This graduate certificate will provide a mechanism for increasing the number and expertise of professionals that are critical to achieving this goal.

**Primary Originator**

| Name |
|---|
| Renee Albertson (Fisheries, Wildlife & Conservation Sciences, Instructor) |
| Lisa Ballance (Marine Mammal Institute, Director) |
| Bruce Dugger (Fisheries, Wildlife & Conservation Sciences, Associate Department Head) |
| Kristen Jennings (Fisheries, Wildlife & Conservation Sciences, Administrative Program Assistant) |

**Liaisons**

| Academic Unit |
|---|
| Fisheries, Wildlife & Conservation Sciences (FW) |
| College of Earth, Ocean & Atmospheric Sciences - Graduate (ATS, GEO, GEOG, GPH, OC, OEAS) |
| Oceanography - Graduate (OC) |
| Veterinary Biomedical Sciences (VMB) |
| Statistics (ST) |
| School of Public Policy (ECON, PS, PPOL, SOC) |
| Integrative Biology (BI, IB, Z) |
| Marine Resource Management (MRM) |
| Forest Ecosystems & Society (FES, MNR, NR, SNR, TRAL) |
| College of Science - Graduate (SCI) |
| Applied Economics (AEC) |
| Biochemistry & Biophysics (BB) |
| College of Agricultural Sciences (AGRI, BRR, IAWS, SUS) |

## Program Information

**Program Level**
Graduate

**Program Type**
Certificate

**Name**
Marine Mammal Graduate Certificate

**CIP Code**
309999 - Multi-/Interdisciplinary Studies, Other.

**College**
Agricultural Sciences (01)

**Academic Unit**
Fisheries, Wildlife & Conservation Sciences

**Is this program jointly administered?**
No

**Date the Early Alert was submitted for this proposal**
2/3/2022

**What degree types are available for this graduate or professional program?**
Certificate

**Campus Locations**
Corvallis
Other

**Other Location**

Courses will be offered hybrid via Corvallis with face-to-face content at Hatfield Marine Science Center. Corvallis Campus is the admitted home campus. HMSC is a location for teaching only.

**Is this program currently or planned to be offered in hybrid format?**

Yes

**Explain the format**

This is an on-campus (Hatfield) and hybrid (where the on-campus portion is at the Hatfield campus) Certificate. Some Ecampus courses are listed as elective choices as part of the curriculum, but this is not officially an Ecampus certificate.

**Will this program lead to professional licensure in any U.S. state or territory?**

No

## Executive Summary

**Executive Summary**

The Marine Mammal Graduate Certificate represents a transdisciplinary approach to marine mammalogy through the study of the stewardship of our oceans. The certificate represents an approach to curriculum integration which dissolves boundaries between conventional disciplines and organizes teaching and learning around the construction of meaning in the context of real-world problems.

## HECC - Higher Education Coordinating Commission

## Program Description

**HECC Description**

The Marine Mammal Graduate Certificate represents a transdisciplinary approach to marine mammalogy through the study of the stewardship of our oceans. The certificate represents an approach to curriculum integration which dissolves boundaries between conventional disciplines and organizes teaching and learning around the construction of meaning in the context of real-world problems.

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

Disciplinary foundations and connections

Within the holistic framework of systems thinking, students will learn and practice problem-solving strategies that include stakeholders from different disciplines. The results are integrated approaches to solving problems associated with human-wildlife conflict, using marine mammals as case studies. The curriculum includes courses and fieldwork with experts in a wide range of disciplines (biology, habitat science, policy, statistics, conservation, human dimensions). Students will expand their knowledge of marine mammals, marine ecosystems, and management and conservation challenges pertaining to these keystone animals; develop advanced skills in human dimensions, problem solving, and data analysis; and synthesize specialist knowledge of the strategies and partnerships required to sustainably manage marine resources. In addition to coursework, students will plan and implement a substantive, hands-on marine research or outreach project with faculty addressing a complex problem (e.g., some combination of collection and interpretation of data, participation in the scientific peer review process, formulation of solutions, and communication of outcomes to diverse audiences). The program will assist students with the identification of their project and a professional mentor, both tailored to the students' career interests or goals.

Program Objectives

This is a 20-credit graduate certificate.

Students will

Apply marine mammal biology, ecology, and areas of conflict with human use of marine ecosystems;

Synthesize the concepts and practices that exemplify a transdisciplinary approach (e.g., systems thinking, systems mapping, stakeholder mapping) associated with human use of marine resources that impact marine mammals;

Execute the development and presentation (written or spoken) of a research or outreach capstone project (including synthesis and documentation of background information, written project proposal, outline, final product) that meets professional standards of achievement.

Programmatic Focus

Certificate graduates will have the skills to:

•work productively with multiple stakeholders on critical issues facing global marine environments inhabited by marine mammals;

•create a network of colleagues from diverse backgrounds and familiarity with resources available across departments, centers and institutes, and colleges within OSU

•Undertake data collection, organization, and analysis;

•Communicate with diverse audiences.

Concentrations offered

This graduate certificate will emphasize transdisciplinary problem-solving using marine mammals as case studies.

**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)**

Program locations - Hatfield, Corvallis, face-to-face, hybrid.

Course scheduling - Several courses already exist in the OSU course catalog. The certificate courses will include three new courses the first year and one new course the second year (Hatfield campus). These Hatfield courses will eventually be taught as hybrid courses. Courses offered at Hatfield will be offered as "blocks" during the summer (sessions 2,4,5) and fall terms (session 5A) similar to how Hatfield courses are presently offered in order to allow students maximum flexibility and opportunity to take courses.

Technology - All courses will use the Canvas platform and host Zoom technology. Several courses in the curriculum will require students to access OSU Box accounts to access data for analysis. The analyses will utilize R, QGIS, and other software programs used by biologists around the world.

**Adequacy and quality of faculty delivering the program**

All teaching faculty hold a Ph.D. degree. Mentors hold graduate degrees and/or at least three years' experience in the field (e.g., a mentor may be an OSU faculty, graduate student or MMI Affiliate Faculty).

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

Faculty are either full-time OSU faculty, or invited professors who will teach with an OSU faculty.

**Other staff**

Graduate student TAs for help with field trips, van driving, etc. for field courses

**Adequacy of facilities, library, and other resources**

Hatfield Marine Science Center has state of the art classrooms and class laboratories in the Gladys Valley Marine Studies Building. The Guin Library at the Hatfield Marine Science Center is a branch library of the OSU Valley Library. The Guin Library has an extensive collection of resources in the marine sciences including monographs, journals and maps. In addition, they have access to the Valley Library collections both in print and online. A library shuttle service delivers materials back and forth 5 days per week. The Guin Library has a full-time librarian with two additional library technicians. Course reserves, bibliographic instruction and interlibrary loan services are available. There are 7 public access computers for student use along with printers and scanners. In addition, the Guin Library has relationships with other marine science libraries throughout North America allowing access to a broad range of resources.

## Relationship to Mission and Goals

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

This certificate aligns with Oregon State University's commitment to creating and sustaining a diverse environment that is both equitable and inclusive while maintaining a rigorous focus on the power of science to contribute to economic prosperity, social progress, and environmental health. The certificate will promote the active and innovative search for new knowledge pertaining to marine mammals and solutions to challenges they face, particularly in the context of human-wildlife conflict and sustainability.

**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**

One of Oregon State University's core values is that diversity is a key to success. This certificate is a flexible program with a number of courses that allow the curriculum to be tailored to fit the interest of the student using marine mammals as case studies. By adhering to the University's commitment to creating and sustaining a diverse environment that is both equitable and inclusive, this certificate promotes collaboration among communities in Newport, along Oregon's coast, and oceans around the world pertaining to the search for solutions to challenges associated with human use of the sea and negative impacts of marine mammals.

**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 certificate will

Enhance depth and breadth of knowledge pertaining to marine mammals in the context of Oregon coastal ecosystems, waters of the U.S. west coast, and global oceans.

Promote the active and innovative search for new knowledge pertaining to marine mammals and solutions to challenges they face, particularly in the context of human-wildlife conflict and sustainability.

Enhance expertise of early and mid-career professionals and educate and guide the next generation of scholars and professionals.

Promote collaboration among communities in Newport, along Oregon's coast, and oceans, around the world pertaining to the search for solutions to challenges associated with human use of the sea and negative impacts of that use on marine mammals.

Maintain a rigorous focus on the power of science to contribute to economic prosperity, social progress, and environmental health.

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

Much of Oregon's coastal economy (and coastal economies at a global scale) is associated with commercial and recreational fisheries, ecotourism, and development of renewable energy (wind and wave). Marine mammals are deeply entwined with these economies in positive (e.g., whale watching) and problematic (e.g., entanglement in fishing gear, competition for commercially fished species, sea lion removal from dams, potential impacts from extraction of renewable energy) ways. There is a growing need for experts in marine mammalogy to engage in these issues and provide solutions that embrace humans as a critical part of marine ecosystems, with sustainability and ocean health as the ultimate goal. This graduate certificate will provide a mechanism for increasing the number and expertise of professionals that are critical to achieving this goal.

**Address civic and cultural demands of citizenship**

Diversity is a key to success. OSU is committed to equal opportunity for all, inclusive of age, color, disability, gender identity or expression, genetic information, marital status, national origin, race, religion, sex, sexual orientation, or veteran's status.

The certificate will

Promote collaboration among communities in Newport, along Oregon's coast and oceans, and around the world pertaining to the search for solutions to challenges associated with human use of the sea and negative impacts of that use on marine mammals.

Maintain a rigorous focus on the power of science to contribute to economic prosperity, social progress, and environmental health, and therefore students will cultivate a commitment to the common good and contribute to a better world as engaged citizens.

## Accreditation

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

N/A

**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**

N/A

**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**

N/A

**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**

N/A

## Need

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

**Year One:**

**Fall Term Headcount:**

22

**FTE Enrollment:**

14.67

**Expected Degrees/Certificates**

8

**Year Two:**

**Fall Term Headcount:**

22

**FTE Enrollment:**

14.67

**Expected Degrees/Certificates:**

18

**Year Three:**

**Fall Term Headcount:**

30

**FTE Enrollment:**
20
**Expected Degrees/Certificates**
32

**Year Four:**
**Fall Term Headcount:**
44
**FTE Enrollment:**
29.33
**Expected Degrees/Certificates**
45

**Year Five:**
**Fall Term Headcount:**
44
**FTE Enrollment:**
29.33
**Expected Degrees/Certificates**
65

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

#We expect this certificate to attract resident, nonresident, and international students, both traditional and nontraditional. This degree is both a starting point, and an opportunity to increase breadth and depth of knowledge for preparation and for enhanced performance for early and mid-career professionals in federal government and state agencies (research, regulation, compliance, e.g., NOAA, Navy, Bureau of Ocean Energy Management, USFWS, State Departments of Fisheries & Wildlife); commercial enterprise (e.g., renewable energy, oil and gas extraction, ecotourism); as well as research and teaching in academia. Both full and part-time students will be part of the program.

**Evidence of market demand**

Much of Oregon's coastal economy is associated with commercial and recreational fisheries, ecotourism, and development of renewable energy (wind and wave). Marine mammals are deeply entwined with these economies in positive (e.g., whale watching) and problematic (e.g., entanglement in fishing gear, competition for commercially fished species, sea lion removal from dams, potential impacts from extraction of renewable energy) ways. There is a growing need for experts in marine mammalogy to engage in these issues and provide solutions that embrace humans as a critical part of marine ecosystems, with sustainability and ocean health as the ultimate goal. This graduate certificate will provide a mechanism for increasing the number and expertise of professionals that are critical to achieving this goal. In addition to market demand, the proposal may also address the ways in which the program serves the need for improved educational attainment in the region and state, as well as the civic and cultural demands of citizenship. In a recent survey of Fisheries, Wildlife, and Conservation Sciences Graduate Certificate holders (2023, N = 55), 79% of respondents thought that a Graduate Certificate in Marine Mammal Science and Conservation would be useful and 35% said it was a Certificate they might apply for themselves or recommend to others.

**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)**

N/A, this is not a shared location.

**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?**

This degree is both a starting point, and an opportunity to increase breadth and depth of knowledge for preparation and for enhanced performance for early and mid-career professionals in federal government and state agencies (research, regulation, compliance, e.g., NOAA, Navy, Bureau of Ocean Energy Management, USFWS, State Departments of Fisheries & Wildlife); commercial enterprise (e.g., renewable energy, oil and gas extraction, ecotourism); as well as research and teaching in academia. Therefore, students may be seeking additional certification (mid-career) or experience (apply to graduate programs).

## Outcomes and Quality Assessment

**Expected learning outcomes of the program**

Learning Outcomes

Students will

Apply marine mammal biology, ecology, and areas of conflict with human use of marine ecosystems;

Synthesize the concepts and practices that exemplify a transdisciplinary approach (e.g., systems thinking, systems mapping, stakeholder mapping) associated with human use of marine resources that impact marine mammals;

Execute the development and presentation (written or spoken) of a research or outreach capstone project (including synthesis and documentation of background information, written project proposal, outline, final product) that meets professional standards of achievement.

Certificate graduates will have the skills to:

•work productively with multiple stakeholders on critical issues facing global marine environments inhabited by marine mammals;

•create a network of colleagues from diverse backgrounds and familiarity with resources available across departments, centers and institutes, and colleges within OSU

•Undertake data collection, organization, and analysis;

•Communicate with diverse audiences.

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

Each outcome will be assessed using biannual reviews by students and mentors as well as exit surveys when students complete the certificate.

Curriculum and course content (within courses presented by the Marine Mammal Institute faculty) will be reviewed annually. Students will be evaluated using various methods of assessment (assignments, written and oral project presentations, and the final Capstone project) using specified criteria related to the Learning Outcomes. Students will participate in an exit survey upon completion of the certificate answering questions specific to Learning Outcomes and career pathways. These data will be compiled for the department and university use.

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

Program faculty are expected to

Conduct research, education, outreach, or be otherwise professionally involved in topics pertaining to marine mammals

Collaborate with the University and the Marine Mammal Institute

Produce professional products (e.g., presentations, publications, influence policy) associated with their areas of expertise.

## Program Integration and Collaboration

**Closely related programs in this or other Oregon colleges and universities**

FWCS offers a Graduate Certificate in Fisheries Management or Wildlife Management. This Certificate will focus on marine mammals, with an emphasis on transdisciplinary knowledge, systems thinking, and human dimensions.

No other Universities in Oregon offer a graduate or undergraduate certificate in marine mammals. Elsewhere in the U.S. there are undergraduate certificates in Marine Science (University of Texas, University of Hawaii, Manoa). The University of Alaska Anchorage Kachemak Bay Campus of Kenai Peninsula College offers undergraduates a “Semester by the Bay” with an option in Marine Mammal Biology. Undergraduates from these programs may find this program would integrate well with their specialty area.

Graduate Certificates within the U.S. include the University of Florida’s “Care and Conservation of Aquatic Animals Certificate” an online program and University of Hawaii (Manoa) offers a “Ocean Policy Certificate”. Outside the U.S. Australia’s University of the Sunshine Coast offers a “Graduate Certificate in Marine Science”.

**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**

No similar program is offered in other Oregon institutions. However, the University of Oregon’s marine campus (Oregon Institute of Marine Biology) hosts undergraduate students who may be interested in this certificate as a next step in their education. OSU’s Marine Mammal Institute faculty already collaborate with Portland State University (PSU) faculty on marine mammal strandings along the Oregon coast so students from PSU may also be interested in this certificate as a next step. Moreover, several OSU Marine Mammal Institute faculty accept graduate students and this certificate would provide a strong foundation for these students before entering a graduate program.

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

No similar programs exist. However, due to the nature of research and collaboration, there will be collaboration among colleagues in marine mammal and fisheries fields on national and international scales.

**Potential impacts on other programs**

This certificate should not have negative (competing) impacts on other programs within the University as it is unique and not similar to any current program offered at OSU. In fact, this certificate may enhance several other OSU programs due to its transdisciplinary nature. This would include the School of Public Policy, the CEOAS graduate certificate programs (Marine Resource Management and Geographic Information Science), and Fisheries, Wildlife and Conservation Sciences graduate thesis-based programs.

## Graduate Learning Outcomes (GLOs) for Graduate Students

**Will this program fulfill more than one learning outcome?**

Yes

## Conduct research or produce some other form of creative work

**List the measures or instruments used to assess each outcome. How do students demonstrate their attainment of the learning outcome? How is their learning evaluated? At least one of these must be a direct measure. In order to explore trends in the data, we advise that assessment method remain consistent from year-to-year**

For the Capstone project students have a rubric where points are given for specific criteria of the project related to the learning outcome. They are scored based on how much of each criterion they accomplished. These criteria will be used each year for comparison.

**Has this assessment method changed since the last reporting cycle?**

No

**What benchmark or milestone - related to the specific measure or instrument - is used to determine whether the outcome has been satisfactorily met by the students? In order to explore trends in the data, we advise that benchmarks remain consistent from year-to-year**

For each criterion in the rubric there is a score (1-4) and a description pertaining to the degree the outcome was met.

**Describe any changes to the benchmark or milestone since the last reporting cycle**

N/A

**Describe the data collection process (e.g., Who is involved? How is the data collected?)**

The rubric used will be used to score the Capstone project by the Capstone mentor. The rubric will be submitted to the department for records and comparison purposes for subsequent cohorts.

**What do the data show about student learning relative to the specific learning outcome? Describe any result, pattern, or trends that you identify as meaningful or that highlights an area(s) of concern or success**

N/A

**Describe any course-level (content, pedagogical, structural, etc.) changes that are an outgrowth of the current year's assessment of this outcome. Include timelines**

N/A

**Describe any program or degree-level changes that are an outgrowth of the current year's assessment of this outcome. Include timeline**

N/A

**If this learning outcome has been assessed previously and is being reported on again this year, what impact have the changes had (if any) on student learning? If you have not previously assessed this learning outcome, indicate the year you will revisit this outcome**

N/A

## Demonstrate mastery of subject material

**List the measures or instruments used to assess each outcome. How do students demonstrate their attainment of the learning outcome? How is their learning evaluated? At least one of these must be a direct measure. In order to explore trends in the data, we advise that assessment method remain consistent from year-to-year**

For the Capstone project students have a rubric where points are given for specific criteria of the project related to the learning outcome. They are scored based on how much of each criterion they accomplished. These criteria will be used each year for comparison.

**Has this assessment method changed since the last reporting cycle?**

No

**What benchmark or milestone - related to the specific measure or instrument - is used to determine whether the outcome has been satisfactorily met by the students? In order to explore trends in the data, we advise that benchmarks remain consistent from year-to-year**

For each criterion in the rubric there is a score (1-4) and a description pertaining to the degree the outcome was met.

**Describe any changes to the benchmark or milestone since the last reporting cycle**

N/A

**Describe the data collection process (e.g., Who is involved? How is the data collected?)**

The rubric used will be used to score the Capstone project by the Capstone mentor. The rubric will be submitted to the department for records and comparison purposes for subsequent cohorts.

**What do the data show about student learning relative to the specific learning outcome? Describe any result, pattern, or trends that you identify as meaningful or that highlights an area(s) of concern or success**

N/A

**Describe any course-level (content, pedagogical, structural, etc.) changes that are an outgrowth of the current year's assessment of this outcome. Include timelines**

N/A

**Describe any program or degree-level changes that are an outgrowth of the current year's assessment of this outcome. Include timeline**

N/A

**If this learning outcome has been assessed previously and is being reported on again this year, what impact have the changes had (if any) on student learning? If you have not previously assessed this learning outcome, indicate the year you will revisit this outcome**

N/A

## Conduct scholarly or professional activities in an ethical manner

**List the measures or instruments used to assess each outcome. How do students demonstrate their attainment of the learning outcome? How is their learning evaluated? At least one of these must be a direct measure. In order to explore trends in the data, we advise that assessment method remain consistent from year-to-year**

For the Capstone project students have a rubric where points are given for specific criteria of the project related to the learning outcome. They are scored based on how much of each criterion they accomplished. These criteria will be used each year for comparison.

**Has this assessment method changed since the last reporting cycle?**

No

**What benchmark or milestone - related to the specific measure or instrument - is used to determine whether the outcome has been satisfactorily met by the students? In order to explore trends in the data, we advise that benchmarks remain consistent from year-to-year**

For each criterion in the rubric there is a score (1-4) and a description pertaining to the degree the outcome was met.

**Describe any changes to the benchmark or milestone since the last reporting cycle**

N/A

**Describe the data collection process (e.g., Who is involved? How is the data collected?)**

#The rubric used will be used to score the Capstone project by the Capstone mentor. The rubric will be submitted to the department for records and comparison purposes for subsequent cohorts.

**What do the data show about student learning relative to the specific learning outcome? Describe any result, pattern, or trends that you identify as meaningful or that highlights an area(s) of concern or success**

N/A

**Describe any course-level (content, pedagogical, structural, etc.) changes that are an outgrowth of the current year's assessment of this outcome. Include timelines**

N/A

**Describe any program or degree-level changes that are an outgrowth of the current year's assessment of this outcome. Include timeline**

N/A

**If this learning outcome has been assessed previously and is being reported on again this year, what impact have the changes had (if any) on student learning? If you have not previously assessed this learning outcome, indicate the year you will revisit this outcome**

N/A

## Process

**Describe the process the program used to reflect on the outcome data**

N/A

**Were there any challenges or concerns?**

N/A

**How are the results of your assessment effort related to strategic planning and overall program review?**

N/A

**Are there specific data archiving notes for the outcome(s) you are reporting on in this report?**

N/A

## Plans

**Describe the unit's (or sub-units) assessment plans for the upcoming year**

Learning Outcome assessment will begin starting in year two of the program.

## Information for the Catalog

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

20

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

The Marine Mammal Graduate Certificate represents a transdisciplinary approach to marine mammalogy through the study of the stewardship of our oceans. The certificate represents an approach to curriculum integration which dissolves boundaries between conventional disciplines and organizes teaching and learning around the construction of meaning in the context of real-world problems.

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

| Code | Title | Credits |
|---|---|---|
| **Required Core** | | |
| FW 506 | PROJECTS (Capstone) | 3 |
| FW 568 | HUMAN DIMENSIONS OF MARINE MAMMAL CONSERVATION | 4 |
| **Marine Mammalogy Courses** | | |
| Select at least two courses from the following for a minimum of 7 credits: | | 7-9 |
| FW 569 | METHODS IN PHYSIOLOGY AND BEHAVIOR OF MARINE MEGAFAUNA | |
| FW 566 | BEHAVIORAL ECOLOGY OF MARINE ANIMALS | |
| FW 519 | THE NATURAL HISTORY OF WHALES AND WHALING | |
| VMB 546 | INFECTIOUS DISEASES OF MARINE MAMMALS | |
| **Focused Electives** | | |
| Select 6-8 credits from one focus category or select an additional course from Marine Mammalogy: | | 6-8 |
| FW 507 | SEMINAR (Marine Science) | |
| *Habitat Science Focus* | | |
| FW 523 | MONITORING WILDLIFE POPULATIONS AND THEIR HABITATS | |
| FW 567 | ANTARCTIC SCIENCE AND CONSERVATION | |
| OC 533 | COASTAL AND ESTUARINE OCEANOGRAPHY | |
| OC 549 | ECOLOGICAL THEORIES IN BIOLOGICAL AND FISHERIES OCEANOGRAPHY DATA | |
| SNR 540 | GLOBAL ENVIRONMENTAL CHANGE | |
| *Policy and Effective Communication Focus* | | |
| AEC 511 | INTRODUCTION TO FOOD SYSTEMS: LOCAL TO GLOBAL | |
| FES 526 | EFFECTIVE COMMUNICATION & PRESENTATION SKILLS FOR SCIENTISTS | |
| FW 514 | PROFESSIONAL DEVELOPMENT: MEETING COMMUNICATIONS | |
| FW 522 | INTRODUCTION TO OCEAN LAW | |
| FW 560 | PSYCHOLOGY OF ENVIRONMENTAL DECISIONS | |
| PPOL 546 | THE POLICY AND LAW OF UNITED STATES COASTAL GOVERNANCE | |
| PPOL 547 | INTEGRATED POLICY: FOOD, ENERGY, WATER, CLIMATE | |
| PPOL 548 | MARINE POLICY IN THE UNITED STATES | |
| SNR 520 | SOCIAL ASPECTS OF SUSTAINABLE NATURAL RESOURCES | |
| *Statistics and Data Analysis Focus* | | |
| BB 585 | APPLIED BIOINFORMATICS | |
| IB 516 | ANALYTICAL WORKFLOWS | |
| ST 516 | FOUNDATIONS OF DATA ANALYTICS | |
| ST 559 | BAYESIAN STATISTICS | |
| ST 592 | STATISTICAL METHODS FOR GENOMICS RESEARCH | |
| *Conservation Biology and Management Focus* | | |
| FW 544 | QUANTITATIVE DECISION ANALYSIS FOR FISH AND WILDLIFE MANAGEMENT | |
| FW 563 | CONSERVATION BIOLOGY OF WILDLIFE | |
| FW 564 | MARINE CONSERVATION BIOLOGY | |
| **Total Credits** | | **20-24** |

## Letters of Support

**External Letters of Support**

LetterofSupport_OSUMMcertificate_MSrinivasan.pdf
Support Letter Bettridge -OSU certificate program.pdf

## Accessibility Form

**Accessibility Guidelines**

I have reviewed the listed documents

**Faculty Guidelines**

I have reviewed the listed documents

**Information Technology 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 |
|---|---|---|---|---|---|
| Lisa Ballance | Fisheries, Wildlife, and Conservation Sciences | Ph.D. | Director, Marine Mammal Institute | Marine mammal ecology | Director, Instructor, Mentor |
| Renee Albertson | Fisheries, Wildlife, and Conservation Sciences | Ph.D. | Senior Instructor | Marine mammal genetics and evolution | Instructor, Mentor |

## Budget Information

**Budget Worksheet and Narrative**

Budget Narrative FWCS Marine Mammalogy Certificate 092322.docx
osubudget_worksheet_FWCS Marine Mammalogy Certificate092322.xlsx

**Supporting Documentation**

Marine Mammal Certificate Curriculum Final.xlsx

**Reviewer Comments**

**Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele) (Tue, 14 Mar 2023 20:32:18 GMT):** Requested originator input course FW 566 into CIM as a new course if they wish to include that course in this curriculum.

**David Jacobs (Capital Planning Development, Manager - Space Allocation) (david.jacobs) (Tue, 14 Mar 2023 21:08:36 GMT):** This program state "on-campus(Hatfield) and hybrid". If gather this means no space will be required on Corvallis campus for graduate students. Historically, space has been in short supply for grad students in F&WCS. So, as long as this program has not expected impact on space in Corvallis campus, Space Management has no objection to approving this program.

**Tjodie Richardson (Applied Economics, Head Advisor) (tjrichardson) (Tue, 14 Mar 2023 21:19:52 GMT):** No objections.

**Jeff Reimer (Applied Economics, Professor) (jeff.reimer) (Tue, 14 Mar 2023 21:28:36 GMT):** No objections

**Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele) (Wed, 15 Mar 2023 13:28:04 GMT):** FW 566 is a slash course with FW 466. In CIM, it is reflected under FW 466. The FW 466/566 new course proposal has been submitted and is presently going through workflow.

**Lori Kayes (Integrative Biology, Associate Department Head, Director of Undergraduate Studies) (lori.kayes) (Fri, 17 Mar 2023 19:54:08 GMT):** No objections

**Renee Albertson (Fisheries, Wildlife Conservation Sciences, Instructor) (renee.albertson) (Wed, 19 Apr 2023 00:38:49 GMT):** David Jacobs, that is correct. No space will be required on the Corvallis campus since it will be hybrid or based at Hatfield only.

**Kristin Nagy Catz (OSU Director of Assessment) (kristin.nagycatz) (Wed, 19 Apr 2023 21:28:36 GMT):** Rollback: You have different verbs listed for the learning outcomes in two places. In one place it is understand for the first learning outcomes, and in the second place it is apply. Please use apply in both places and do not use understand. In addition, you have skills that are separate and different from the learning outcomes. They need to be integrate. Please contact me with questions. kristin.nagycatz@oregonstate.edu

**Renee Albertson (Fisheries, Wildlife Conservation Sciences, Instructor) (renee.albertson) (Thu, 20 Apr 2023 22:06:03 GMT):** I have revised the LO's as per Kristen Nagy Catz's suggestions.

**Kristin Nagy Catz (OSU Director of Assessment) (kristin.nagycatz) (Fri, 21 Apr 2023 13:27:08 GMT):** Rollback: It still says that students will Understand marine...It needs to say apply and match the other one.

**Renee Albertson (Fisheries, Wildlife Conservation Sciences, Instructor) (renee.albertson) (Fri, 21 Apr 2023 15:44:55 GMT):** Kristen, this has now been fixed in both places.

**Kristin Nagy Catz (OSU Director of Assessment) (kristin.nagycatz) (Fri, 21 Apr 2023 17:13:52 GMT):** Rollback: The learning outcomes section needs to just have outcome statements. They should start with the action verb and be one sentence. You have them done correctly in the first section. You should list all of those from the first section and skills section in the learning outcomes section.

**Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele) (Wed, 26 Apr 2023 17:29:54 GMT):** Kristin Nagy-Catz approved the program learning outcomes on 4/21/23 as evidenced in the History column.

**Frank Chaplen (Biological Ecological Engineering, Associate Professor) (frank.chaplen) (Tue, 16 May 2023 15:07:49 GMT):** Rollback: The BFPC would like more detail on the negative revenue stream shown in the spreadsheet in the narrative. Please reach out if you have questions.

**Renee Albertson (Fisheries, Wildlife Conservation Sciences, Instructor) (renee.albertson) (Wed, 24 May 2023 21:37:38 GMT):** To provide more information for the BFPC regarding negative revenue stream: Because of changes in the university and CAS budget models, it is not possible to anticipate the net financial impact of the certificate at this time. The projected revenue stream for the overall program is positive each year (ranging from $18K to $63K). The projected negative revenue stream is the FWCS unit-specific calculations. These are minimal (ranging from -$6K to -20K). However, the program relies on existing faculty FTE for teaching and course development, and new costs associated with admissions and advising will be minimal because of existing certificate advising staff in FWCS. Most courses will have online sections to generate Ecampus revenue, and we expect revenue generation from a growing number of certificates awarded over time.

**John Becker-Blease (College of Business, Associate Dean of Graduate Programs, and Graduate Council Chair) (john.becker-blease) (Mon, 16 Oct 2023 19:09:40 GMT):** GC discussed the HMSC location and that this might limit some interest, but overall we support the certificate.

**Jim Coakley (College of Business, Associate Professor and Curriculum Council Co-Chair) (jim.coakley) (Wed, 22 Nov 2023 14:43:44 GMT):** Approved. Originator open to adding GEOG 553 after review of syllabus.

# Key: 803