

783: ONE HEALTH CERTIFICATE

In Workflow

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Approval Path

1. Wed, 05 Apr 2023 00:28:22 GMT
Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Rollback to Initiator
2. Fri, 06 Oct 2023 17:39:33 GMT
Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Rollback to Initiator
3. Mon, 23 Oct 2023 18:22:21 GMT
Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for Curriculum Management Programs
4. Thu, 26 Oct 2023 08:19:51 GMT
Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes): Rollback to Initiator
5. Mon, 04 Dec 2023 22:35:50 GMT
Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for Curriculum Management Programs
6. Thu, 07 Dec 2023 04:44:25 GMT
Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes): Approved for Catalog Coordinator
7. Thu, 07 Dec 2023 22:07:58 GMT
Stacy Semevolos (College of Veterinary Medicine, Director of Professional & Graduate Programs) (stacy.semevolos): Approved for 15 Dean Designee
8. Thu, 07 Dec 2023 23:17:14 GMT
Alix Gitelman (Vice Provost for Academic Affairs) (alix.gitelman): Approved for Provost Designee
9. Fri, 08 Dec 2023 18:47:53 GMT
Luiz Bermudez (College of Veterinary Medicine, Department Head) (luiz.bermudez): Approved for BMS Head
10. Tue, 30 Jan 2024 19:08:29 GMT
David Jacobs (Capital Planning & Development, Manager - Space Allocation) (david.jacobs): Approved for Space Evaluation
11. Wed, 07 Feb 2024 10:49:55 GMT
0/1 votes cast.
Yes: 0% No: 0%
Approved for 7 Day Review
12. Wed, 07 Feb 2024 12:00:19 GMT
Brianna Beechler (College of Veterinary Medicine, Assistant Professor of Research) (brianna.beechler): Approved for beechleb
13. Wed, 07 Feb 2024 15:53:58 GMT
Heath Henry (Academic Programs & Assessment, Assessment Coordinator) (heath.henry): Approved for Assessment Coordinator
14. Wed, 07 Feb 2024 17:05:56 GMT
Stacy Semevolos (College of Veterinary Medicine, Director of Professional & Graduate Programs) (stacy.semevolos): Approved for 15 College Committee Approver
15. Wed, 07 Feb 2024 23:00:47 GMT

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

16. Thu, 08 Feb 2024 19:57:44 GMT
Brianna Beechler (College of Veterinary Medicine, Assistant Professor of Research) (brianna.beechler): Approved for beechleb
17. Thu, 29 Feb 2024 00:32:19 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
18. Thu, 29 Feb 2024 16:53:08 GMT
Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for Curriculum Management Programs
19. Fri, 08 Mar 2024 20:52:39 GMT
Jim Coakley (College of Business, Associate Professor and Curriculum Council Co-Chair) (jim.coakley): Approved for Curriculum Council Co-Chairs
20. Tue, 02 Apr 2024 20:26:22 GMT
Vickie Nunnemaker (Faculty Senate, Special Assistant to the Faculty Senate President) (vickie.nunnemaker): Approved for Executive Committee

New Program Proposal

Date Submitted: Mon, 04 Dec 2023 22:22:14 GMT

Viewing: : One Health Certificate

Last edit: Fri, 22 Mar 2024 22:11:04 GMT

Changes proposed by: beechleb

Proposal

Effective Term

Fall 2024

Justification

One health is a framework that emphasizes the links between human, animal and environmental health, and utilizes a collaborative approach to solve the pressing health dilemmas of today. The recent pandemic response has highlighted the importance of establishing links between health professionals, ecologists and environmental scientists. This program seeks to bring together undergraduate scholars from diverse disciplines, allowing them to develop their cross-disciplinary collaboration skills from the beginnings of their undergraduate education.

Primary Originator

Name

Luiz Bermudez (College of Veterinary Medicine, Department Head)

Brianna Beechler (College of Veterinary Medicine, Assistant Professor of Research)

Liaisons

Academic Unit

College of Veterinary Medicine

College of Earth, Ocean & Atmospheric Sciences - Undergraduate (ATS, GEO, GEOG, OC)

College of Agricultural Sciences (AGRI, BRR, IAWS, SUS)

College of Public Health & Human Sciences (H)

College of Forestry

College of Liberal Arts (LA, MAST, SSCI)

College of Pharmacy (PHAR)

College of Science - Undergraduate (SCI)

College of Education (AHE, COUN, ED, SED)

Integrative Biology (BI, IB, Z)

Forest Ecosystems & Society - Undergraduate (FES, NR, TRAL)

Fisheries, Wildlife & Conservation Sciences (FW)

Microbiology (BHS, MB)

School of Life Sciences

Biochemistry & Biophysics (BB)

Counseling & Adult and Higher Education (AHE, COUN)
 Environmental Sciences - Undergraduate (ENSC)
 School of Language, Culture & Society (all languages, ANTH, CSSA, ES, FCSJ, LING, QS, WGSS, WLC)
 School of Public Policy - Undergraduate (ECON, PS, PPOL, SOC)
 School of Psychological Science (PSY)
 School of Visual, Performing, & Design Arts (ART, GD, MUED, MUS, MUP, TA)
 Animal & Rangeland Sciences (ANS, RNG)
 Applied Economics (AEC)
 Botany & Plant Pathology (BOT, BDS)
 School of Biological & Population Health Sciences (AT, HHS, KIN, NUR, NUTR, PT)
 School of Social & Behavioral Health Sciences (HDFS)
 School of History, Philosophy & Religion (EAH, HST, HSTS, PAX, PHL, REL)
 Wood Science and Engineering (WSE)
 Geography - Undergraduate (GEOG)

Program Information

Program Level

Undergraduate

Program Type

Certificate

Name

One Health Certificate

CIP Code

340199 - Health-Related Knowledge and Skills, Other.

College

Veterinary Medicine (15)

Academic Unit

Veterinary Biomedical Sciences

Is this program jointly administered?

No

Date the Early Alert was submitted for this proposal

12/27/22

What degree types are available for this undergraduate program?

Certificate

Is this certificate available as standalone?

No

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

Executive Summary

Executive Summary

One health is a framework that emphasizes the links between human, animal and environmental health, and utilizes a collaborative approach to solve the pressing health dilemmas of today. This concept has existed for centuries with Rudolf Virchow, a German physician in the 19th century, who wrote that “between animal and human medicine there are no dividing lines–nor should there be.” Since then, numerous people have espoused similar opinions but it wasn’t until 2008 when the American Veterinary Medical Association released its report on “One Health”, that the movement began to gain traction in veterinary schools worldwide. One of the highlighted goals in this report was to “develop centers of excellence for education and training through enhanced collaboration”. Although numerous veterinary schools now have one health programs, most extend their work to professional students and often do not bring the concept early on the education ladder, with the aim of recruiting young students with diverse interests. Therefore, our program seeks to bring ideas from environmental health, ecology, veterinary medicine, biomedical sciences and public health – creating an interdisciplinary one health program for undergraduates exposing them to the principles of one health collaboration early in their career. As a land grant and sea grant institution with colleges in public health, environmental sciences, pharmacy and veterinary medicine, OSU is uniquely positioned to provide this education to students.

HECC - Higher Education Coordinating Commission

Program Description

HECC Description

This certificate will require the students to obtain 27 credits. There is one required capstone class where the students synthesize and work together to solve pressing one health related problems, taught by Dr. Brianna Beechler (VMB/BHS 415, 3 credits, One Health In Practice). Students must take 1 course from each of the 3 lists (animal health, environmental health, human health). Students will also be required to enroll in 2 seminar credits (VMB 407) requiring them to attend seminars and guest lectures during a term that fit the one health “curriculum” (these can be anywhere in the University). Lastly, students will complete a thesis (if research-based) or experiential opportunity worth 4 internship/research credits (VMB 401 or VMB 410). For this opportunity there will be suggested faculty and programs available, however the student may also choose to work with any faculty they wish, as long as the project is approved by coordinator Dr. Brianna Beechler. The remainder of the elective credits (up to 27) will be from any class on the three lists below. Students will have an opportunity to take a number of classes, maximizing diversity and inclusion of a broad array of undergraduate scholars in this program. We have included several course options from numerous departments, including liberal arts, which meets the new core ed system which improves collaboration across disciplines and brings in students from diverse perspectives.

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

One health is a framework that emphasizes the links between human, animal and environmental health, and utilizes a collaborative approach to solve the pressing health dilemmas of today. This concept has existed for centuries with Rudolf Virchow, a German physician in the 19th century, who wrote that “between animal and human medicine there are no dividing lines–nor should there be.” Since then, numerous people have espoused similar opinions but it wasn’t until 2008 when the American Veterinary Medical Association released its report on “One Health”, that the movement began to gain traction in veterinary schools worldwide. One of the highlighted goals in this report was to “develop centers of excellence for education and training through enhanced collaboration”. Although numerous veterinary schools now have one health programs, most extend their work to professional students and often do not bring the concept early on the education ladder, with the aim of recruiting young students with diverse interests. Therefore, our program seeks to bring ideas from environmental health, ecology, veterinary medicine, biomedical sciences and public health – creating an interdisciplinary one health program for undergraduates exposing them to the principles of one health collaboration early in their career. As a land grant and sea grant institution with colleges in public health, environmental sciences, pharmacy and veterinary medicine, OSU is uniquely positioned to provide this education to students. This certificate will require the students to obtain 27 credits. There is one required class where the students synthesize and work together to solve pressing one health related problems, taught by Dr. Brianna Beechler (VMB/BHS 415, 3 credits, One Health In Practice). Students will also be required to enroll in 2 seminar credits (VMB 200) requiring them to attend seminars and guest lectures during a term that fit the one health “curriculum” (these can be anywhere in the University). Lastly, students will complete a thesis (if research-based) or experiential opportunity worth 4 internship/research credits (VMB 401 or VMB 410). For this opportunity there will be suggested faculty and programs available, however the student may also choose to work with any faculty they wish, as long as the project is approved by coordinator Dr. Brianna Beechler. The remainder of the elective credits (18 credits) will be from classes already offered in a variety of departments.

The multidisciplinary nature of the One Health approach requires that One Health professionals are proficient in knowledge, skills, behaviors, and attitudes that go beyond the discipline-specific knowledge gained through traditional training programs. Therefore, we will use this program to foster communication and collaboration, bridging gaps between traditionally separate fields. Students in this program will:

- 1) Understand how environmental, human and animal health are linked.
- 2) Obtain discipline specific knowledge relevant to the one health field in fields such as (but not limited to) infectious disease emergence, zoonotic disease, climate change, agricultural practices, global food production or antimicrobial resistance.
- 3) Develop collaboration skills to address one health problems.
- 4) Obtain research or practical experience in a one health field through an externship or research experience with an expert in the field of interest.

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)

It will be delivered on campus in Corvallis and use the traditional activities utilizing Canvas.

Adequacy and quality of faculty delivering the program

The faculty member leading the program, Dr. Beechler, is a veterinarian and ecologist who has led an undergraduate class (VMB 415) and field course (One Health OSU Summer Program) that are focused on the topic of one health for the last several years. She has taught veterinary, graduate and undergraduate students for more than 5 years - and as both a veterinarian and ecologist is interested in developing one health curriculum for Oregon State. She has supervised numerous research students, and during this program will be responsible for teaching VMB 415 (the capstone course) and helping students find internships/research opportunities. She has provided research opportunities to undergraduates at all levels - from first year undergraduates involved in URSA Engage to honors students. She will continue to provide this expertise throughout this program.

Dr. Bermudez is the biomedical sciences department head, the department where this certificate will be based. He is a medical doctor and has been teaching veterinary, graduate and undergraduate students for more than 20 years. He has co-developed all curriculum with Dr. Beechler and teaches several courses listed in the possible electives. He has been passionate about one health curriculum development for years, including developing a graduate and veterinary course on a one health approach to antimicrobial resistance. He has mentored numerous undergraduates and will offer opportunities in his laboratory to one health students interested in internships/research experience.

The remainder of the courses are taught by faculty in their regular departments, and students can enroll in the electives of their choice.

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

Dr. Beechler, Assistant Professor, has 0.2 FTE to lead this program, provided by biomedical sciences.

Other staff

Lynette Hawthorne, an administrative assistant in biomedical sciences will function in a support role.

Adequacy of facilities, library, and other resources

Students will utilize campus facilities, libraries, and other resources on campus as needed. No additional or new facilities are required.

Relationship to Mission and Goals

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

The proposed program supports the mission of Oregon State University in the following regards:

Producing skilled graduates who are critical thinkers: Graduates from this program will develop the skills to synthesize and analyze information from a broad array of different fields including biomedical sciences, ecology, natural resource management, and social science. They will learn to think critically about how these areas intersect and drive patterns of health and disease across populations.

Searching actively for new knowledge and solutions: This program will support hands-on research that will lead to the generation of new knowledge and solutions for emerging issues in conservation, human health, and domestic animal health. Students will conduct research on the distribution and spread of pathogens that have the capacity to cross species boundaries. Thus, this program will link the generation of innovative research solutions with hands-on research experience for students.

Developing the next generation of scholars: Scholars from this program will go on to work in a diverse array of fields that include basic and applied research, human health, animal health, and environmental health. These students will be trained in state-of-the-art theory and techniques that will serve them throughout their scholarly careers.

Collaborating with communities in Oregon and around the world: Program faculty and students will work with Oregon Department of Fish and Wildlife, Oregon Department of Environmental Quality, and state public health officials to identify relevant research questions and collaborate on solving urgent issues in public health, environmental health, and wildlife conservation.

Maintaining a rigorous focus on academic excellence, particularly in three signature areas: the science of sustainable earth ecosystems, health and wellness, and economic prosperity and social progress: Students will be trained rigorously in applied research and data analysis methods that will lead them to contribute meaningfully to the three signature areas included in this portion of the OSU mission statement. The required One Health course will focus on integrating sustainability, human health, and natural resource management in ways that are critical to support economic prosperity. Students will learn to translate their academic excellence into social progress through a variety of hands-on experiences and formal instruction.

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

Faculty and program officials will actively recruit students from underrepresented communities by (1) working with Outreach and Engagement to develop student recruitment pipelines in all 36 Oregon counties; (2) actively recruiting through Oregon community colleges and prioritizing accessibility of the program for transfer students; (3) by abiding by the best practices for recruitment provided by the EOA office. Retention of nontraditional students and those from underrepresented backgrounds will be improved by faculty participation in the mentorship training opportunities offered by the graduate school. Students will be required to participate in formal training on diversity, inclusion, and anti-racism that are currently offered by Oregon State University.

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:**

This program provides an innovative educational opportunity for undergraduate students in Oregon that will support the development of a strong scientific, conservation, and healthcare workforce for the region and state. Specifically, this program will support the development of Oregon's next generation of scientists by providing hands-on research experience and pairing these experiences with strong theoretical and technical training.

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

Emerging infectious diseases and zoonoses pose an ever-growing threat to human, wildlife, and domestic animal health. Globalization, climate change, and land-use change are driving dramatic changes to disease transmission pathways, pathogen evolution, and vulnerability of human and animal populations. This program is specifically designed to respond to these growing challenges, and to establish the role of Oregon State University as a leader in addressing these challenges at the necessary scale by training the next generation of scientists and practitioners, and by supporting innovative research conducted by students and faculty.

Address civic and cultural demands of citizenship

Faculty and students will contribute to collective efforts to improve public health, the health of shared natural resources, and culturally important fish and wildlife populations. Through hands-on research experiences, students will understand both the value and limitations of science in solving large-scale social problems. Students will also be given unique opportunities to participate in public outreach programs that serve to educate the broader public in One Health issues.

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

There is no accrediting body for one health.

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

NA

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

NA

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

There is no accreditation process for certificates in one health.

Need**Anticipated fall term headcount, FTE enrollment, and expected degrees/certificates produced over each of the next five years****Year One:****Fall Term Headcount:**

20

FTE Enrollment:

20

Expected Degrees/Certificates

0

Year Two:**Fall Term Headcount:**

40

FTE Enrollment:

40

Expected Degrees/Certificates:

0

Year Three:**Fall Term Headcount:**

45

FTE Enrollment:

45

Expected Degrees/Certificates

20

Year Four:**Fall Term Headcount:**

50

FTE Enrollment:

50

Expected Degrees/Certificates

40

Year Five:**Fall Term Headcount:**

50

FTE Enrollment:

50

Expected Degrees/Certificates

45

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

Students served will be anyone interested in one health. The idea behind one health is collaborating across disciplinary boundaries, so to achieve maximum collaboration students from any degree program are eligible to enroll and participate.

Evidence of market demand

Public Health agencies are faced with challenges never imagined fifty years ago. In order to meet those challenges, veterinary schools, medical schools, and government agencies are joining forces. The One Health Initiative is a worldwide strategy to encourage communication and collaboration between healthcare disciplines. A recent manuscript ([https://www.thelancet.com/journals/lanph/article/PIIS2542-5196\(22\)00018-3/fulltext](https://www.thelancet.com/journals/lanph/article/PIIS2542-5196(22)00018-3/fulltext)) "advocate that One Health education must go beyond medical and veterinary students and begin earlier than postgraduate programmes." They state: "Transdisciplinary thinking and collaboration are best learnt within truly diverse student cohorts, inclusive of science, technology, engineering, mathematics, and medicine, as well as humanities, arts, and social sciences. It is in such mixed classes that disciplinary thinking, world views, life experiences, cultural backgrounds, and knowledge systems can be shared." The University of Melbourne has recently tried this approach with great success. We wish to duplicate this success here. Dr. Beechler has taught a local one health field course for the last two summers and has capped enrollment at 8 students. While the program was in the early stages we did not advertise, yet had greater than 15 applications both years. Several years ago we ran a one health seminar series that integrated speakers across disciplines and had more than 100 people attending each seminar. The demand here at OSU for one health education is high, and we wish to help educate undergraduates to better approach the one-health problems we face in our world.

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)

There are no similar programs in Oregon.

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?

Students in this program will enter the workforce in diverse fields - some may become doctors, veterinarians and other health professionals, while others will enter non-medical careers in social science, business, and other diverse fields. The point of one health education in the early years is to expose students to the principles of one health, and have them collaborate on global health concerns across disciplinary boundaries. This program will allow them to develop these collaboration and communication skills necessary to take one health into the workforce. Students who complete this program will have a one health certificate, showing employers that they are concerned about global health and have developed communication and thought skills that will allow them to approach problems in their jobs. Employers need employees that have the ability to collaborate and communicate, and this program will provide these skills.

Outcomes and Quality Assessment**Expected learning outcomes of the program**

- 1) Explain how environmental, human and animal health are linked and apply these concepts to a problem in their field of study.
- 2) Develop collaboration skills needed to address one-health problems by interacting with each other across disciplinary boundaries.

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

During each seminar (VMB 407) students will complete a reflection explaining how each topic is relevant to all facets of one health which is evaluated by the course coordinator (learning outcome 1). Students will complete an internship or research experience. Their mentoring faculty will provide an evaluation form that details their ability to collaborate and communicate one health topics (learning outcomes 2 and 3).

During VMB 415 the students ability to communicate a one health problem, and work with their peers to solve one health related problems are evaluated by Dr. Beechler when the students complete their final project (learning outcome 1 & 2). At the end of the program students will be asked to do an exit interview, to explain how learning outcomes were addressed and any improvements they would recommend. (learning outcomes 1-3).

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

Faculty will conduct research in their home departments, and be assessed by their home department. However, faculty that are mentoring students in this certificate for their internship or research will show evidence of work on a one-health related topic - which is provided to Dr. Beechler prior to a student gaining approval to work with their selected faculty member.

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

The one health certificate brings students together from diverse programs with Oregon State to learn to collaborate across disciplinary boundaries on topics relevant to the health of humans, animals and the environment. There are no other one-health interdisciplinary programs in the state of Oregon.

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

There are no other one-health interdisciplinary programs in the state of Oregon. Potential for collaboration with other programs at Oregon State University is high because this program will offer highly complementary training, intellectual and physical resources, and research programs. For example, it is anticipated that the One Health program will work closely with the Carlson College of Veterinary Medicine, Oregon Veterinary Diagnostic Laboratory, Oregon Department of Fish and Wildlife, and Oregon Department of Environmental Quality. This program will also build capacity for Oregon institutions to participate in national and international collaborations.

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

Not applicable - there are no other one-health interdisciplinary programs in the state of Oregon.

Potential impacts on other programs

This program will positively impact other programs that are ongoing within the Carlson College of Veterinary Medicine, Oregon Veterinary Diagnostic Laboratory, Oregon Department of Fish and Wildlife, and Oregon Department of Environmental Quality by drawing new students from diverse communities, supporting meaningful research that has cross-program relevance, and contributing to the development of a skilled workforce for important public health and conservation programs.

Program Learning Outcomes (click the green plus button to add learning outcome)**Learning Outcome**

Explain how environmental, human and animal health are linked and apply these concepts to a problem in their field of study.

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

2027

List courses where this outcome will be taught

VMB 415, VMB 407, VMB 401 or VMB 410

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

Students will complete a reflection explaining how each topic is relevant to all facets of one health which is evaluated by the course coordinator in VMB 407. (Direct)

During VMB 415 the students ability to communicate a one health problem, and work with their peers to solve one health related problems are evaluated by Dr. Beechler when the students complete their final project. (Direct)

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

Adequate grades in the capstone course, successful completion of the certificate by at least 75% of the enrolled students.

At the end of the program students will be asked to do an exit interview, to explain how learning outcomes were addressed and any improvements they would recommend.

Learning Outcome

Develop collaboration skills needed to address one-health problems by interacting with each other across disciplinary boundaries.

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

2027

List courses where this outcome will be taught

VMB 415, all electives

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

Students will complete an internship or research experience. Their mentoring faculty will provide an evaluation form that details their ability to collaborate and communicate one health topics (direct).

During VMB 415 the students ability to work with their peers to solve one health related problems are evaluated by Dr. Beechler when the students complete their final project (direct).

At the end of the program students will be asked to do an exit interview, to explain how learning outcomes were addressed and any improvements they would recommend (direct).

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

Successful completion of certificate by 75% of students.

Favorable reviews from supervising faculty of students in greater than 75% of student.

Favorable Exit Interview Outcomes in greater than 60% of exiting students.

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)

One Health is a framework that emphasizes the links between human, animal and environmental health, and utilizes a collaborative approach to solve the pressing health dilemmas of today. The multidisciplinary nature of the One Health approach requires that One Health professionals are proficient in knowledge, skills, behaviors, and attitudes that go beyond the discipline-specific knowledge gained through traditional training programs. Therefore, we will use this program to foster communication and collaboration, bridging gaps between traditionally separate fields. This certificate will expose students to the concept of one health through coursework, internships and research experience.

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

Code	Title	Credits
Required Core		
VMB 415/BHS 415	ONE HEALTH IN PRACTICE	3
VMB 407	SEMINAR	2
VMB 401 or VMB 410	RESEARCH AND SCHOLARSHIP ¹ INTERNSHIP	4
Electives		
Select a minimum of one course from each of the following categories:		18
<i>Environmental Health</i>		
ANTH 352	*ANTHROPOLOGY, HEALTH, AND ENVIRONMENT	
BB 350	ELEMENTARY BIOCHEMISTRY	
BI 370	ECOLOGY	
BI 495	DISEASE ECOLOGY	
ENSC 341	TROPICAL ECOLOGY AND CONSERVATION	
FW 326	INTEGRATED WATERSHED MANAGEMENT	
FW 345	*GLOBAL CHANGE BIOLOGY	
GEOG 332/H 332	*CLIMATE AND HEALTH	
H 344	FOUNDATIONS OF ENVIRONMENTAL HEALTH	
H 388	*GLOBAL ENVIRONMENTAL HEALTH	
HST 481	*ENVIRONMENTAL HISTORY OF THE UNITED STATES	
MB 448	MICROBE-ENVIRONMENT INTERACTIONS	
TRAL 354	COMMUNITIES, NATURAL AREAS, AND SUSTAINABLE TOURISM	
WSE 470	*FORESTS, WOOD, AND CIVILIZATION	
<i>Human Health</i>		
ANTH 383	*INTRODUCTION TO MEDICAL ANTHROPOLOGY	
BB 350	ELEMENTARY BIOCHEMISTRY	
BB 450	GENERAL BIOCHEMISTRY	
BB 451	GENERAL BIOCHEMISTRY	
BB 490	BIOCHEMISTRY 1: STRUCTURE AND FUNCTION	
BB 491	BIOCHEMISTRY 2: METABOLISM	

BB 492	BIOCHEMISTRY 3: GENETIC BIOCHEMISTRY
BHS 255	*ALLIED HEALTH MICROBIOLOGY
BHS 316	PRINCIPLES OF IMMUNOLOGY
BHS 320	HUMAN BACTERIOLOGY
BHS 323	*MICROBIAL INFLUENCES ON HUMAN HEALTH
BHS 329	MECHANISMS OF DISEASE: INTRODUCTION TO GENERAL PATHOLOGY
BHS 340	HUMAN VIROLOGY
BI 348	*HUMAN ECOLOGY
H 225	+*SOCIAL DETERMINANTS OF HEALTH
H 320	INTRODUCTION TO HUMAN DISEASE
H 344	FOUNDATIONS OF ENVIRONMENTAL HEALTH
H 448	PUBLIC HEALTH TOXICOLOGY
H 425	FOUNDATIONS OF EPIDEMIOLOGY
H 445	*OCCUPATIONAL HEALTH
HSTS 416	*HISTORY OF MEDICINE PRE-1800
HSTS 417	*HISTORY OF MEDICINE
MB 302	GENERAL MICROBIOLOGY
MB 385	*EMERGING INFECTIOUS DISEASES AND EPIDEMICS
MB 436	THE HUMAN MICROBIOME
MB 480	GENERAL PARASITOLOGY
PHL 325	*SCIENTIFIC REASONING
PHL 444	*BIOMEDICAL ETHICS
PSY 498	HEALTH PSYCHOLOGY
SOC 204	+*INTRODUCTION TO SOCIOLOGY
SOC 280	INTRODUCTION TO ENVIRONMENT AND SOCIETY
SOC 381	SOCIAL DIMENSIONS OF SUSTAINABILITY
VMB 112	THE ONE HEALTH PARADIGM AND AUDIENCE CONNECTIONS
VMB 443	FROM AIDS TO ZIKA – EPIDEMICS, PANDEMICS, AND ONE HEALTH
<i>Animal Health</i>	
ANS 311	PRINCIPLES OF ANIMAL NUTRITION
ANS 313	APPLIED ANIMAL NUTRITION: FEEDS AND RATION FORMULATION
ANS 435	APPLIED ANIMAL BEHAVIOR
FW 251	PRINCIPLES OF FISH AND WILDLIFE CONSERVATION
FW 325	*GLOBAL CRISES IN RESOURCE ECOLOGY
FW 366	ENVIRONMENTAL CONTAMINANTS IN FISH AND WILDLIFE
FW 371	ENVIRONMENTAL PHYSIOLOGY OF FISHES
FW 427	PRINCIPLES OF WILDLIFE DISEASES
MB 480	GENERAL PARASITOLOGY
VMB 438	DISEASES OF WILD AND AQUACULTURE INVERTEBRATES
VMB 446	INFECTIOUS DISEASES OF MARINE MAMMALS
Z 423	ENVIRONMENTAL PHYSIOLOGY
Z 431	VERTEBRATE PHYSIOLOGY I
Total Credits	

27

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Baccalaureate Core Course (BCC)

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Writing Intensive Course (WIC)

1

VMB 401 and VMB 410 credits should be discussed with your advisor. 401 and 410 credits from other academic programs will be considered and allowed with approval from the One Health Program Advisor.

Letters of Support

External Letters of Support

External Letters of Support.docx

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
Brianna Beechler	College of Veterinary Medicine	DVM, PHD	Assistant Professor	Disease Ecology, Wildlife physiology, domestic animal health	Leader
Luiz Bermudez	College of Veterinary Medicine	PHD, MD	Department Head	Infectious Disease	Co-Leader
Anna Jolles	College of Veterinary Medicine	PHD	Professor	Ecology of Infectious Disease	Research Supervisor for Students
Justin Sanders	College of Veterinary Medicine	PhD	Assistant Professor	Parasitology	Research Supervisor for Students
Brian Dolan	College of Veterinary Medicine	PhD	Associate Professor	Immunology	Research Supervisor for Students
Natalia Shulzenko	College of Veterinary Medicine	PhD	Associate Professor	Microbiome	Research Supervisor for Students
Lia Danelshvili	College of Veterinary Medicine	PhD	Associate Professor	Microbiology	Research Supervisor for Students
Jen Johns	College of Veterinary Medicine	PhD, DVM	Associate Professor	Clinical Pathology	Research Supervisor for Students
Duncan Russell	College of Veterinary Medicine	PhD, DVM	Associate Professor	Anatomic Pathologist	Research Supervisor for Students
Jean Hall	College of Veterinary Medicine	PhD, DVM	Professor	Nutritional Vet Med	Research Supervisor for Students
Claire Couch	College of Veterinary Medicine	PhD	Research Associate	Microbiome and Immunology	Research Supervisor for Students

Budget Information**Budget Worksheet and Narrative**

Budget Narrative.docx

One Health Budget.xlsx

Reviewer Comments

Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele) (Wed, 05 Apr 2023 00:28:22 GMT): Rollback: Please see email regarding issues. Contact cim.help@oregonstate.edu or janice.nave-abele@oregonstate.edu with questions and for assistance.

Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele) (Fri, 06 Oct 2023 17:39:33 GMT): Rollback: Please review entire proposal as course number updates were made. If satisfactory resubmit or make necessary updates.

Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele) (Mon, 23 Oct 2023 18:21:09 GMT): Core is comprised of only one fixed course. Discussed with originator who has indicated that this is how they must structure given staffing limitations. Extensive credits in the elective requirements.

Julia Jones (College of Earth, Ocean Atmospheric Sciences, Professor) (julia.jones) (Wed, 25 Oct 2023 19:39:36 GMT): Please consider adding GEOG 332/H 332 Climate and Health to this certificate. That course is taught by Annie Hommel in the College of Health, and cross listed with Geography. Thank you, Julia Jones, Professor, Director, Geography and Geospatial Science

Linda Bruslind (Microbiology, Lead Advisor) (bruslindl) (Wed, 25 Oct 2023 21:12:15 GMT): You might consider adding MB 436: The Human Microbiome and/or MB 448: Microbe-Environment Interactions.

Linda Bruslind (Microbiology, Lead Advisor) (bruslindl) (Wed, 25 Oct 2023 21:48:26 GMT): After additional contemplation, MB 480: Parasitology might be the best inclusion from MB, since it inherently involves the interactions of human, animals, and the environment.

Laurence Becker (College of Earth, Ocean Atmospheric Sciences, Professor) (laurence.becker) (Wed, 25 Oct 2023 22:46:50 GMT): Hello, Thank you for this proposal. Here are 3 comments: 1) The idea of a One Health Certificate is good. We wonder about the core and the need for additional structure to focus the purpose of the certificate (Program Learning Outcomes). 2) If approved, the Environmental Sciences Undergraduate Program would like to consider allowing ES students to use this certificate to fulfill the specialization in our degree program. 3) We love the theater and music. However, we wonder why MUS 103 (Great Composers) and TA 147 (Introduction to the Theater) are included in this proposal! Larry Becker, Director, Env. Sci. Undergrad. Prog. Tyler McFadden, Coordinator, Env. Sci. Undergrad. Prog.

Belinda Sykes (Office of the Registrar, Catalog Curriculum Coordinator) (belinda.sykes) (Thu, 26 Oct 2023 08:19:51 GMT): Rollback: Rolling back so you can make adjustments to the requirements as needed, based on feedback you've received from departments. I am happy to assist once you are ready to resubmit.

Brianna Beechler (College of Veterinary Medicine, Assistant Professor of Research) (brianna.beechler) (Mon, 04 Dec 2023 22:31:07 GMT): We addressed all liaison concerns by adding additional courses (as suggested by liaisons) and removing others (as suggested by liaisons). Additionally, as suggested by several liaisons we restructured the required classes to ensure that students take at least one class in each category (animal health, environmental health, human health).

Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele) (Mon, 04 Dec 2023 22:40:00 GMT): Assisted Bree with the necessary edits. She has resubmitted and addressed all liaison comments with her edits.

Belinda Sykes (Office of the Registrar, Catalog Curriculum Coordinator) (belinda.sykes) (Thu, 04 Jan 2024 02:20:33 GMT): Ahead of submitting this proposal for formal liaison review, the originator made contact with the Environmental Sciences, Geography, Sociology, Integrative Biology and Microbiology programs, as well as the department of Fisheries, Wildlife & Conservation Sciences, and the College of Health. Much of their feedback has been integrated into the requirements.

Michael Harte (College of Earth, Ocean Atmospheric Sciences, Professor) (michael.harte) (Tue, 30 Jan 2024 19:22:31 GMT): No concerns - looks like a great certificate!

Tjodie Richardson (Applied Economics, Head Advisor) (tjrichardson) (Tue, 30 Jan 2024 19:22:58 GMT): No objections.

Nicole Kent (College of Forestry, Manager of Undergraduate Curricula Advising) (nicole.kent) (Tue, 30 Jan 2024 19:27:35 GMT): No concerns from COF.

Erika Wolters (School of Public Policy, Summer Session/Non-Teaching) (erika.wolters) (Tue, 30 Jan 2024 19:45:58 GMT): No concerns. If interested there are some PS classes that would potentially fulfill the human health component (PS 575 Environmental Politics and Policy; PS 576 Science and Policy)

Kathryn Becker Blease (School of Psychological Science, Director) (kathryn.blease) (Tue, 30 Jan 2024 20:19:22 GMT): Recommend adding PSY 498 Health Psychology to the list of Human Health classes. Given the questions about theater and music, liaison comment from the School of Visual, Performing, & Design Arts (ART, GD, MUED, MUS, MUP, TA) will be important. The School of Psychological Science has a colloquia series with speakers that likely fulfill the "seminars and guest lectures during a term that fit the one health "curriculum" (these can be anywhere in the University)" requirement."

Bruce Dugger (Fisheries, Wildlife Conservation Sciences, Associate Department Head) (bruce.dugger) (Tue, 30 Jan 2024 22:05:05 GMT): Looks interesting. As stated by the proposal authors, FWCS was consulted prior to formal submission. We support this proposal.

Jonathan Kaplan (School of History, Philosophy Religion, School Director) (jonathan.kaplan) (Tue, 30 Jan 2024 22:43:34 GMT): Looks like it will be a great program. I have a few suggestions re: SHPR classes as electives, however. For the first category, "Environmental Health," HST 481 (ENVIRONMENTAL HISTORY OF THE UNITED STATES) might be a useful addition to the list. While we do not currently teach an environmental justice course, it is an important area of research in philosophy, and if there was interest in our teaching such a course as one option for this program, that might provide the impetus needed to develop and teach it. In the second category, "Human Health," Philosophy 444 (Biomedical Ethics) seems like a more obvious choice than 325 (Scientific Reasoning), and I'd recommend swapping it out. The Biomedical Ethics course (PHL 444) has a unit on the social determinants of health and a unit more specifically focused on environmental justice and health, and so seems like it would be a good fit here. History of Science has 2

courses in the history of medicine (HSTS 416: Pre-1800; HSTS 417 1800-present), and these seem like possibly good options for the certificate as well. At the moment, we don't have any offerings that speak directly to animal health, at least not that I can think of!

John Edwards (College of Liberal Arts, Associate Dean) (jedwards) (Tue, 30 Jan 2024 23:43:43 GMT): No additional comments beyond what has already been voiced by others.

Megan MacDonald (School of Biological Population Health Sciences, Associate Professor) (megan.macdonald) (Wed, 31 Jan 2024 00:25:31 GMT): Please consider reviewing the courses in Public Health that may be relevant, for example H 344 Foundations of Environmental Health, H 448 Public Health Toxicology.

Julia Jones (College of Earth, Ocean Atmospheric Sciences, Professor) (julia.jones) (Wed, 31 Jan 2024 01:33:28 GMT): No concerns. Thank you for adding H332/GEOG 332 Climate and Health.

Laurel Kincl (College of Health, Associate Dean of Academic Faculty Affairs) (laurel.kincl) (Wed, 31 Jan 2024 02:53:35 GMT): Thank you for creating this one health certificate as it is an important topic. Thank you for adding public health courses since public health is mentioned frequently in the proposal. I do hope to promote this with our public health students. Consider additional public health courses: H225 Social and Individual Health Determinants, H320 Introduction to Human Diseases.

Theresa Filtz (College of Pharmacy, Associate Dean for Academic Programs) (theresa.filtz) (Wed, 31 Jan 2024 19:17:28 GMT): No concerns from Pharmacy and looks like an interesting opportunity for students.

Jessica Siegel (College of Science, Associate Dean for Academic Student Affairs) (jessica.siegel) (Thu, 01 Feb 2024 17:17:48 GMT): No concerns, looks great.

Jeff Reimer (Applied Economics, Professor) (jeff.reimer) (Thu, 01 Feb 2024 18:15:14 GMT): No concerns

Marc Curtis (Botany Plant Pathology, Senior Instructor I) (curtism) (Thu, 01 Feb 2024 18:31:33 GMT): No concerns

Kari van Zee (Biochemistry Biophysics, Lead Advisor) (kari.van.zee) (Mon, 05 Feb 2024 06:35:01 GMT): Biochemistry and Biophysics supports this transdisciplinary training. We recommend including additional pathways for biochemistry training beyond just BB 350 for certificate requirements to make Certificate accessible to more learners. For example BB 350 or (BB 450/451) or (BB 490-491-492) to include more undergraduates (BHS, MB, BI, Zoo, BB, BMB majors) in meeting certificate requirements.

Catherine Bolzendahl (School of Public Policy, Director) (catherine.bolzendahl) (Tue, 06 Feb 2024 00:34:16 GMT): No objections

Lori Kayes (Integrative Biology, Associate Department Head, Director of Undergraduate Studies) (lori.kayes) (Tue, 06 Feb 2024 19:46:21 GMT): As we discussed previously, due to lack of constraints on sharing credits, many life science students would meet these requirements with only 5-9 additional credits. As we discussed previously, it seems like the program would benefit from a early foundational course combined with a later, more synthetic course that contextualizes and integrates what the students might have learned in electives, experiential learning, etc. Also, several of IBs current Bacc Core offerings will be sunset (BI348) or significantly altered (Z349) as we move into the Core Ed. We plan to sunset BI348 this coming year.

Heath Henry (Academic Programs Assessment, Assessment Coordinator) (heath.henry) (Wed, 07 Feb 2024 15:53:56 GMT): The existing learning outcomes are good and the planned assessments are appropriate. Three learning outcomes were listed in the "Outcomes and Quality Assessment" section, while only two are in the assessment planning section. This is understandable, as the third learning outcome is a co-curricular outcome and is difficult to academically measure through coursework. I have approved the learning outcomes and assessment plan for the certificate, but I would like to recommend that an additional learning outcome about communication could benefit the program. I did not see a strong connection with formal communication in the existing learning outcomes. The second learning outcome is focused on interdisciplinary collaboration and teamwork, which is a good topic for a learning outcome. However, this learning outcome is focused on working collaboratively with peers and not the skills involved with formal written or oral communication to outside audiences. Communication across disciplines seems to be an important issue for One Health programs. It is mentioned several times in this proposal and many One Health certificate programs at other institutions include a specific learning outcome for communicating to stakeholders and diverse audiences. An outcome focused on communication would still likely be assessable through coursework in VMB 415.

Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele) (Wed, 07 Feb 2024 23:00:31 GMT): Asked Brianne Beechler to address those liaison comments that were just recently added to the proposal.

Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele) (Fri, 09 Feb 2024 16:37:43 GMT): The originator is presently in Ecuador and has limited internet access. Here are her responses to liaison comments (sent to me via email): Originator's response to specific comments: Julia Jones: GEOG 332/H332 added Linda Bruslind: MB 436 and MB 448 added Laurence Becker: MUS 103 and TA 147 have been removed. Program Learning Outcomes have been reviewed and approved by Heath Henry in the Office of Assessment. The discussion of this certificate being a pathway in Environmental Sciences is a discussion beyond the scope of this proposal. Originator and Dr. Becker to discuss further in the future. Erika Wolters: PS 575 and PS 576 are graduate courses. This is an undergraduate certificate and cannot include graduate courses in program requirements. Kathryn Becker-Blease: PSY 498 added. The MUS 103 and TA 147 courses have been removed. Jonathan Kaplan: HST 481, PH 444, HSTS 416, HSTS 417 added. Megan MacDonald: H 344 and H 448 added. Laurel Kincl: H 225 added. Kari van Zee: BB 350 or BB 450, BB 451 or BB 490, 91, 92 added. Lori Kayes: The point of the foundational courses is to bring together students from different backgrounds and majors, and encourage them to take cross disciplinary courses. Then they will bring together their information in the required 400 level course and practice working together across disciplinary boundaries. They will also use this in the seminar class they must take. We do not want to add additional early classes to their burden as they should be getting their discipline specific knowledge then. BI 348 and Z 349 removed. Heath Henry approved the proposal on Feb. 7 based on originator's response to his comments in direct emails between the two. The proposal evidences Heath's approval in the approval path section of the proposal.

Jeffrey Luck (School of Social Behavioral Health Sciences, Associate Professor, and Budgets Fiscal Planning Committee Chair) (jeff.luck) (Thu, 29 Feb 2024 00:10:49 GMT): Proposal discussed & approved by BFPC on 20 Feb. Discussion noted that Revenue line shows costs to be absorbed by Vet Med, although revenue may flow via the SRBM from other Colleges to Vet Med if students substitute the One Health seminar for other courses.

Ian Munanura (Forest Ecosystems Society, Assistant Professor) (ian.munanura) (Tue, 12 Mar 2024 20:12:24 GMT): This is a good and timely program; I support it.

Kevin Bladon (Forest Ecosystems Society, Department Head) (kevin.bladon) (Wed, 13 Mar 2024 01:09:45 GMT): Sorry for the late reply on this. This looks like an interesting certificate. If possible, might folks also consider "TRAL 354 Communities, Natural Areas, and Sustainable Tourism" as an option to include?

Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele) (Fri, 22 Mar 2024 22:12:18 GMT): The originator is happy to add TRAL 354 to the Environmental Health elective sub-category.

Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele) (Fri, 22 Mar 2024 22:13:13 GMT): TRAL 354 has been added to the Environmental Health category.

Key: 783