

Introduction to Global One Health (CPT56006)

Period 4, Academic Year 2022-2023

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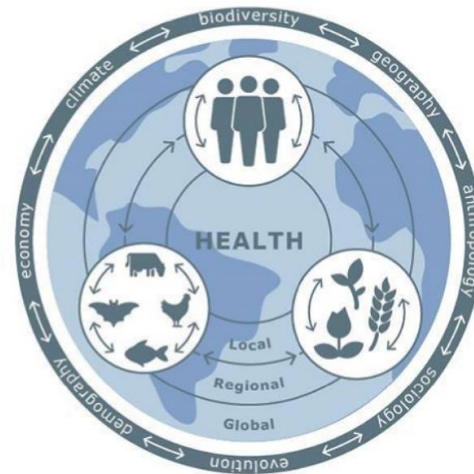
Language: English

Credits: 6

Minor coordinator:

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Profile of the course

The core idea of Global One Health is that health of people, animals, plants and their environments are closely connected, and that the causes for environmental problems and human/animal ill-health easily cross borders. Clear examples are the spread of avian influenza or Ebola, the emergence of antibiotic resistance, the global causes of malnutrition, and health problems linked to water pollution. The insight of how different problems are interconnected has implications for the study of health problems and for policies to prevent disease and environmental degradation.

In this introductory course students explore central approaches, concepts, and practical dilemmas in Global One Health. The aim is not just to understand and learn to use basic tools and concepts in veterinary and public health interventions, but to critically reflect on them as well. This involves understanding and questioning the aims of health policies, comparing different concepts of health, getting familiar with epidemiological studies and approaches, and analyzing and discussing ethical dilemmas in Global One Health practice. Is it ethically justified to cull many animals to prevent possible human infections, e.g. in the case of avian influenza? How to understand responsibility for emerging antibiotic resistance, or for malnutrition? Is ecosystem health just a metaphor or a sensible concept? Cases will include Q-fever, malaria, and waterborne diseases like diarrhea.

Assumed prerequisite knowledge

No specific knowledge is required, but we expect all students to have an interest in discussing the dilemmas that arise in protecting the health of humans, animals and the environment, and in understanding the different perspectives of stakeholders.

Learning outcomes

- Have a basic understanding of the complex of causal connections between environmental, animal and human health, and underlying (e.g. social) determinants, and of the interdisciplinary nature of Global One Health.
- Present and discuss several cases of Global Health and/or OneHealth – causal connections between human/environmental/animal health, and possibilities for protecting and promoting health.
- Understand and critically reflect on normative assumptions in core concepts as used in research and policies, including (summary measures of health; health equity; resilience; OneHealth).
- Present and discuss the ethical dimensions of health problems and of possible interventions; and the dilemmas that occur due to conflicting values.

	Group assignment	Individual assignment	Exam
Intended learning outcomes			
1. Have a basic understanding of the complex of causal connections between environmental, animal and human health, and underlying (e.g. social) determinants, and of the interdisciplinary nature of Global One Health.	X	X	X
2. Present and discuss several cases of Global Health and/or One Health – causal connections between	X	X	X

human/environmental/animal health, and possibilities for protecting and promoting health.			
3. Understand and critically reflect on normative assumptions in core concepts as used in research and policies, including (summary measures of health; (one) health (equity) impact assessment; resilience; OneHealth).		X	X
4. Present and discuss the ethical dimensions of health problems and of possible interventions; and the dilemmas that occur due to conflicting values.	X		X

Educational activities

- reading assigned literature; studying (knowledge) clips; (mandatory) quizzes (daily, digital, and in-class; based on that day's materials);
- searching for relevant literature and other sources for knowledge about the case that is assigned to your group
- active participating in lectures, tutorials, group work;
- an excursion to village of Herpen: stakeholder interviews; presentation
- written and oral presentations as part of group work;
- written individual assignment.

Assessment strategy

- group assignments (50%);
- final written exam (literature and lectures) (50%);

To pass the course, a minimum grade of 5.5 is required for each component, and all quizzes/assignments must be fulfilled in time.


Exam

The written exam will be done online, monitored by the teachers. It is an open-book exam, so you can have the literature available. For the group assignment, see annex 2. The individual assignment (annex 1) will be graded pass/fail.

Class schedule for the course academic year 2022/2023




= Deadline (see below for overview of deadlines!)

Week 1: Introduction to Global One Health				
Mo 20/2	Tue 21/2	Wed 22/2	Thu 23/2	Fri 24/2
Individual study/work on assignments +	Excursion preparation +	Excursion Herpen Q-fever	Individual study/work on assignments +	Individual study/work on assignments +
10:00-11:30 Lecture 1: Marcel Verweij & Marleen Bekker Introduction to the course	10:00-11:30 Lecture 2: Marcel Verweij & Marleen Bekker & Philippe van Basshuysen Global Health and One Health	All day Marcel Verweij & Philippe van Basshuysen Alfons Olde Loohuis	8:20- 11:40 Tutorial 1: Marleen Bekker & Philippe van Basshuysen Stakeholder analysis	10.00-11.30 Lecture 3: Marcel Verweij receives guest: Sander Koenraadt College tour Malaria 

Week 2: Core questions in Global One Health				
Mon 27/2	Tue 28/2	Wed 1/3	Thu 2/3	Fri 3/3
Individual study/work on assignments +	Individual study/work on assignments +	Individual study/work on assignments +	Individual study/work on assignments +	Individual study/work on assignments +
10:00-11:30 Lecture 4: Helen Esser Biodiversity (Marcel Verweij)	10:00-11:30 Lecture 5: Spencer Moore Social determinants of human health (Marcel Verweij)	10:00-11:30 Lecture 6: Wim van der Poel Animal health (Philippe van Basshuysen)	8:20- 11:40 Tutorial 2: Philippe van Basshuysen State-of-the-art review	10.00-11.30 Lecture 7: Philippe van Basshuysen receives guest: Nynke Hofstra College tour Waterborne diseases 

Week 3: Policies, interventions and dilemma's				
Mon 6/3 10:00-11:30	Tue 7/3 10:00-11:30	Wed 8/3 08:20-09:50	Thu 9/3 8:20- 11:40	Fri 10/3 10:00-11:30
Individual study/work on assignments	Individual study/work on assignments	Individual study/work on assignments	Individual study/work on assignments	Individual study/work on assignments
Lecture 8: Marleen Bekker Public Health policies and intervention dilemmas	Lecture 9: Philippe van Basshuysen Animal and Environmental ethics	Lecture 10: Philippe van Basshuysen Conflicting values in Global One Health	Tutorial 3: Marleen Bekker Intervention analysis	

Week 4: Wrap-up and presentations				
Mon 13/3	Tue 14/3 8:20- 11:40	Wed 15/3	Thu 16/3	Fri 17/3 10.00-13.00
Individual study/work on assignments	Individual study/work on assignments	Individual study/work on assignments	Individual study/work on assignments	Exam at home (open book)
-	Tutorial 4: Marleen Bekker & Philippe van Basshuysen Presentations	-	-	

Overview of deadlines

Week	Date	Class
1	Friday 24/2, 18.00 hrs	Individual assignment week 1
2	Friday 3/3, 18.00 hrs	Individual assignment week 2
3	Friday 10/3, 18.00 hrs	Individual assignment week 3
4	Friday 17/3, 18.00 hrs	Group assignment

Annexes: 1 Individual assignment; 2 Group assignment; 3 Excursion instructions; 4: Literature

Annex 1: Individual assignment

The goal of the individual assignment is to help you process the study materials. We ask you to connect what you have learned each week to problems that might just be in the news (the COVID-19 pandemic, current avian influenza outbreak, etc). So, what do we ask you to do? At the end of every week, you write a short reflection essay (max 1 page!) where you connect some of the course content to specific health issues. In this essay you can ask yourself questions such as: What did I learn this week? How could that be relevant to Covid19/avian influenza/or any other topic. You will not be graded for these essays! The essay will, however, be assessed (checking whether you did this with attention and care). You need to pass all three essays in order to pass the course. If you want to write in Dutch, that's fine. The deadline for this short essay is every Friday at 18:00 in week 1, 2 and 3.

Annex 2: Group assignment

In the field of Global One Health we face a variety of health-related challenges. In this course you will be working in groups on one of the topics discussed in the Friday 'college tour' lectures. The goal of the assignment is to persuade one of the stakeholders related to the cause of your problem to change their ways. Can you let them see the complexity and dilemmas? Help the stakeholder look at the topic from a broader perspective. During the four weeks of this course, your group will work through different steps every week to achieve this goal.

Please check the Rubric at the end of the course guide to check where we will focus on when we grade you! This will help you understand what we expect from you and what you need to do.

Choose a topic

The assignment will shortly be explained on Monday February 20 during the first lecture. After this lecture, at 2pm (14.00 hrs) you can subscribe to one of the topics via BrightSpace. Be aware of a max of four students per group!

Topics:

1. Malaria
2. Water-borne diseases

Week 1: Stakeholder analysis

During the first tutorial on Thursday February 23, you make an overview of all the different stakeholders; those who work to solve the problem and those who may cause the problem. You can do this for both stakeholder groups by searching online and by filling in the matrix below. With the help of this matrix, each group gets to choose one of the stakeholders causing the problem. This stakeholder will be the one you will be targeting in the rest of your assignment.

Week 2: State-of-the-art review

Week 2 is all about writing a state-of-the-art review on the current knowledge and research on your topic. This review should summarize and discuss current and emerging research methods, themes, and priorities in the topic. You will also summarize how this topic relates to human, environmental, and animal health. You will have some time to write your review during Tutorial 2 on Thursday March 2 but be aware that this is a full-time course so you're also working on the assignment outside the tutorials.

Week 3: Analysis of interventions

In week 3 we will discuss potential policies, interventions and dilemmas. During this week, you have to search and write about examples of protective interventions (what is already being done? What were the effects of the interventions? And which part of the problem did the intervention focus on and what did they leave out?). This

analysis will be elaborated by a description of what still needs to be done. Moreover, you have to discuss ethical dilemmas regarding your topic (what moral commitments do we have? How do these ethical dilemmas affect our policy responses and public health?). Please describe at least 2 or 3 interventions.

Week 4

In the last week of this course the tutorial takes place on Tuesday. During this tutorial, all groups have to give a persuasive presentation targeting the stakeholder they chose in the first week. You can be creative with this! For example, the presentation can be via a short clip, a play, or with the help of various attributes. Just keep in mind that your goal is to persuade, but do not forget the scientific evidence! Do not forget to also write your recommendations down in your assignment.

Products

At the end of this course, your group hands in their scientific report, which entails all information you found and used for your presentation.

1. A stakeholder analysis and a description and argumentation of the chosen stakeholder that you have focused on;
2. The state-of-the-art knowledge on your topic's interrelation between human, environmental, and animal health; and
3. A critical analysis of the interventions that have already been done and what still needs to be done, and a discussion of ethical dilemmas.
4. A clear and well substantiated recommendation for the chosen stakeholder in order to persuade them to adopt certain policies or change their ways of working, based on the previously found information and on the normative-ethical arguments you have developed and evaluated.

Deadline

Please hand in your assignment before Friday March 17, 6pm (18.00 hrs) via BrightSpace.

Rubric (next page)

	Insufficient	Sufficient	Good	Very good	Credits
Stakeholder analysis	The stakeholder matrix is not filled out. The chosen stakeholder is poorly chosen and not well substantiated. 0.4	The stakeholder matrix is filled out, but 3 or more stakeholders are missing. The chosen stakeholder is well chosen but substantiation is superficial. 0.8	The stakeholder matrix is filled out, 1 or 2 stakeholders are missing. The chosen stakeholder is well chosen and substantiated. 1.0	The stakeholder matrix is filled out, no stakeholders are missing. The chosen stakeholder is well chosen and substantiated. 1.5	1.5
State-of-the-art	The state-of-the-art description is lacking in an analysis of the interconnection between human, environmental, and animal health. The information is not up-to-date. 0.5	The state-of-the-art description is briefly described, an analysis of the interconnection between human, environmental, and animal health that is missing quite some information. The information is not completely up-to-date. 1.0	The state-of-the-art description is well described, including an analysis of the interconnection between human, environmental, and animal health that is missing some detail. The information is mostly up-to-date. 1.5	The state-of-the-art description is to the point, including a detailed analysis of the interconnection between human, environmental, and animal health. The information is up-to-date. 2.0	2
Interventions	Only one interventions is analyzed. The analysis is insufficient and does not clearly describe how the programs/actions/interventions address or do not address the issue. Major points are not described (correctly) or are unclear. Ethical considerations and values of conflict are not discussed or insufficiently. The arguments are not clear or are not sufficiently supported by scientific literature. 0.7	Two or three interventions are analyzed. The analysis is sufficient and describes how the programs/actions/interventions address or do not address the issue to some extent. Some larger points are not described (correctly) or are unclear. Ethical considerations and values of conflict are sufficiently discussed, but are lacking on some critical points. The arguments are not always clear or are not sufficiently supported by scientific literature. 1.3	Two or three interventions are analyzed. The analysis clearly and describes how the programs/actions/interventions address or do not address the issue. A few minor points are not described (correctly) or are unclear. Ethical considerations and values of conflict are discussed. The arguments are clear in most cases and are supported by scientific literature. 2.0	Two or three interventions are analyzed. The analysis clear and extensively describes how the programs/actions/intervention s address or do not address the issue. Ethical considerations and values of conflict are thoroughly discussed. The arguments are clear and are supported by scientific literature. 2.5	2.5
Recommendations	No recommendations for the stakeholders are mentioned or the recommendations are not in line the information found. If recommendations are mentioned they are not substantiated and the OneHealth perspective is not taken into account. 0.7	The recommendations are in line with the information found but very incomprehensive, as it is lacking on multiple parts of the issue. Recommendations are not well substantiated and is lacking on 2 or more points. The OneHealth perspective is barely taken into account. 1.3	The recommendations are in line with information found, but somewhat incomprehensive, as they are lacking on some parts of the issue. Recommendations are well substantiated but lacking on max. 1 point and takes the OneHealth perspective into account. 2.0	The recommendations are in line with information found, and are not only comprehensive, but take the whole picture of the issue into account. Substantiation is concise and looks at the issue from a OneHealth perspective. 2.5	2.5
Presentation	The recommendation and its substantiation is not made clear during the presentation. The presentation is not creative or original. Time is exceeded with more than 25%. 0.3	The visual presentation is missing creativity and originality. The presentation broadly explains the recommendation; a detailed substantiation is lacking. Time is exceeded with max. 25%. 0.5	The visual presentation is lacking creativity or originality in max. 1 point. The recommendation is clear overall; substantiation is lacking on max. 1 point. Time is exceeded with max. 10%. 0.8	The visual presentation is surprisingly creative and original. The recommendations is very clear, including its substantiation. Time limits are met. 1.0	1
Referencing and writing	The reference style is mostly correct although there are some inconsistencies. The readability and lay-out is sufficient. The included tables and figures to some extent support reading and understanding. Text is incomplete, unclear and non written to-the-point. 0.2	The reference style is mostly correct although there are some inconsistencies. The readability and lay-out is sufficient. The included tables and figures to some extent support reading and understanding. Text is not complete and not always clearly written or to-the-point. 0.3	The reference style is mostly correct although there are some inconsistencies. The readability and lay-out is good. The included tables and figures support reading and understanding. Text is lacking in completeness in some places or not always written to-the-point. 0.4	The reference style is correct and consistent. The readability and lay-out is excellent. The included tables and figures support reading and understanding. The report is complete and written to-the-point. 0.5	0.5

Annex 3 Excursion instructions

Excursion to Herpen, the epicentre of the 2007-2010 Q-fever outbreak

In this excursion you will meet: Alfons Olde Loohuis, general practitioner ; Johan van der Schoot, former community alderman (wethouder), Bert & Wilma Zonnenberg, farmers, and Jan Pauwels, citizen. Specific instructions will follow, but expect that we will leave from Ede at around 8:15. The idea is to talk with different stakeholders, learn about what has happened, and how the implications of a zoonoses outbreak are still felt today, and finally to present your ideas about how the municipality could better prepare for and respond to an outbreak like this.

Program:

8:00 at Bus, at the Leeuwenborch

9:15 Arrival Wooijse Hof,

9:30 Brief intro by Marcel and Alfons

10:00 Group 1 (international students) talks with Alfons

10:00-10:45 Group 2 visits family Zonnenberg

Group 3 visits Mr van der Schoot

Group 4 visits Mr Pouwels

11:30-12:15 Group 3 visits family Zonnenberg

Group 4 visits Mr van der Schoot

Group 2 visits Mr Pouwels

12:45-13:30 Lunch at Wooijse Hof

13:30-15:30 Work in 2 teams (with representatives from all groups)

15:30-16:30 Presentations by 2 teams & discussion

17:00 Back to Wageningen

Annex 4 Literature (changes may still follow!)

Week 1

Lecture 1: Introduction to the course (Marcel Verweij and Marleen Bekker)

Lecture 2: Global Health and One Health (Marcel Verweij and Marleen Bekker)

- One Health High-Level Expert Panel (OHHLEP), Adisasmito WB, Almuhairi S, Behravesh CB, Bilivogui P, Bukachi SA, et al. (2022) One Health: A new definition for a sustainable and healthy future. PLoS Pathog 18(6): e1010537. <https://doi.org/10.1371/journal.ppat.1010537>
- De la Rocque S, Belot G, Errecaborde KMM, et al. Operationalisation of consensual One Health roadmaps in countries for improved IHR capacities and health security. BMJ Global Health 2021;6:e005275. doi:10.1136/bmjgh-2021-005275
- De la Rocque S, Errecaborde KMM, Belot G, et al. One health systems strengthening in countries: Tripartite tools and approaches at the human-animal-environment interface. BMJ Global Health 2023;8:e011236. doi:10
- Van Herten J, Bovenkerk B, Verweij M. One Health as a moral dilemma: Towards a socially responsible zoonotic disease control. Zoonoses and Public Health 2019;66(1):2634. <https://doi.org/10.1111/zph.12536>

Wednesday Excursion

- P Speelman. The largest Q-fever outbreak ever reported. *Neth J Medicine* 2010;68(12):380-381. <https://www.njmonline.nl/getpdf.php?id=990>
- Lubick, N. Tough lessons from Dutch Q fever outbreak. *Nature* (2010). <https://doi.org/10.1038/news.2010.102>
- Zembla documentary (2016) looking back at Q-fever outbreak in Herpen (Dutch; 37 minutes) <https://www.bnnvara.nl/zembla/artikelen/de-q-koorts-epidemie-het-vervolg>

Lecture 3: Lecture-interview Sander Koenraadt on Malaria

- Wilson AL, Courtenay O, Kelly-Hope LA, Scott TW, Takken W, et al. (2020) The importance of vector control for the control and elimination of vector-borne diseases. *PLOS Neglected Tropical Diseases* 14(1): e0007831. <https://doi.org/10.1371/journal.pntd.0007831>
- Koenraadt S. Larval source management for malaria control: prospects for new technologies and community involvement. In: Sander Koenraadt, Jeroen Spitzen and Willem Takken (eds). *Innovative strategies for vector control. Progress in the global vector control response. Ecology and Control of Vector-borne Diseases, Volume 6.* Wageningen Academic Publishers, 2021.

Tutorial 1:

Ackermann, F., & Eden, C. (2011). Strategic management of stakeholders: Theory and practice. *Long range planning*, 44(3), 179-196. [Strategic Management of Stakeholders: Theory and Practice \(sciencedirectassets.com\)](https://www.sciencedirect.com/science/article/pii/S019591851000085X)

Week 2

Lecture 4: Biodiversity (Helen Esser)

- Keesing F, Holt RD, Ostfeld RS. Effects of species diversity on disease risk. *Ecology Letters*, (2006) 9: 485–498 <https://doi.org/10.1111/j.1461-0248.2006.00885.x>
- Rohr JR, Civitello DJ, et al. Towards common ground in the biodiversity– disease debate. *Nature Ecology & Evolution*. 2020;4:24-33. <https://doi.org/10.1038/s41559-019-1060-6>

Lecture 5: Social Determinants of Health (Spencer Moore)

- Koplan, et al. (2009). Towards a common definition of global health. *Lancet*, 373: 1993-1995.
- Commission on the Social Determinants of Health. World Health Organization. 2008, pp. 1-23. https://www.who.int/social_determinants/final_report/csdh_finalreport_2008.pdf
- Vupenyu Dzingirai, Bernard Bett, Sally Bukachi, Elaine Lawson, Lindiwe Mangwanya, Ian Scoones, Linda Waldman, Annie Wilkinson, Melissa Leach & Tom Winnebah (2017) Zoonotic diseases: who gets sick, and why? *Explorations from Africa, Critical Public Health*, 27:1, 97110, DOI: 10.1080/09581596.2016.1187260.
- Krieger N. A glossary for social epidemiology. *J Epidemiol Community Health*. 2001 Oct;55(10):693-700. doi: 10.1136/jech.55.10.693. PMID: 11553651; PMCID: PMC1731785.

Lecture 6: Animal Health

Lecture 7: Lecture-interview Nynke Hofstra on Waterborne diseases

- Christopher Troeger, Brigitte F Blacker, et al. Estimates of the global, regional, and national morbidity, mortality, and aetiologies of diarrhoea in 195 countries: a systematic analysis for the

Global Burden of Disease Study 2016, *The Lancet Infectious Diseases*, 2018;18(11): 1211- 1228, [https://doi.org/10.1016/S1473-3099\(18\)30362-1](https://doi.org/10.1016/S1473-3099(18)30362-1)

****background literature****

- Hofstra N, Vermeulen LC, Derx J, Flörke M, Mateo-Sagasta J, Rose J, Medema G: Priorities for developing a modelling and scenario analysis framework for waterborne pathogen concentrations in rivers worldwide and consequent burden of disease. *Curr Opin Environ Sustain* 2019, 36:28-38. <https://doi.org/10.1016/j.cosust.2018.10.002>
- Nynke Hofstra, Gertjan Medema, Lucie C Vermeulen, Reflection on health-environment research in the light of emerging infectious diseases: modelling water quality and health. *Current Opinion in Environmental Sustainability*, 2020;46:810. <https://doi.org/10.1016/j.cosust.2020.09.002>.

Week 3

Lecture 8: Health policy and intervention dilemmas (Marleen Bekker)

- Arredondo, Ana Maria Perez; Yasobant, Sandul; Bruchhausen, Walter; Bet al., (2021). Intersectoral collaboration shaping One Health in the policy agenda: A comparative analysis of Ghana and India. *One Health*13: 100272. <https://doi.org/10.1016/j.onehlt.2021.100272>
- White, Piran CL; Guégan, Jean-françois; Keune, Hans et al., (2020). Integrative policy development for healthier people and ecosystems: A European case analysis. *Area* 52(3). <https://doi-org.ezproxy.library.wur.nl/10.1111/area.12618>

Lecture 9: Environmental and animal ethics (Philippe van Basshuysen)

- The paper by Joost van Herten (see lecture 2).

Lecture 10: Conflicting values in Global One Health (Philippe van Basshuysen)

- Johnson J, Degeling C. Does One Health require a novel ethical framework? *Journal of Medical Ethics* 2019;45:239-243. <https://jme.bmj.com/content/45/4/239.full>

Further reading/background

- Virginia Berridge. *Public Health. A very short introduction*. Oxford University Press, 2016. The pocket or ebook, available for example here at bol.com or amazon.
- Harrison S , Kivuti-Bitok L , Macmillan A , Priest P (2019). *EcoHealth and One Health: A theory-focused review in response to calls for convergence*. *Environment international* 132: doi: 105058. <https://www.sciencedirect.com/science/article/pii/S0160412019305409>
- Richter, C.H., Steele, J.A., Nguyen-Viet, H., Xu, J. & Wilcox, B.A. (2015). Toward operational criteria for ecosystem approaches to health. *EcoHealth*, 12, 220-226. <https://link.springer.com/article/10.1007%2Fs10393-015-1028-1>