UNIVERSITÄT BONN

Module Handbook

for the postgraduate
Master program
Global Health

as of: July 2024

Study Program Director	Prof. Dr. Walter Bruchhausen Section Global Health Medical Faculty, University of Bonn Venusberg-Campus 1 53127 Bonn	master.globalhealth@ukbonn.de
Study Program Coordination	Dr. Christina-Alexandra Conzen/Dr. Eva Mertens Section Global Health Medical Faculty, University of Bonn Venusberg-Campus 1 53127 Bonn	master.globalhealth@ukbonn.de

Table of Contents

Compulsory Modules (‚Pflichtmodule‘)

Elective Modules (‚Wahlpflichtmodule‘)

Abbreviations:

E = excursion
L = lecture
o = online
prT = practical tutorial
S = seminar
T = tutorial
W = workshop

Note:

Each credit point equals a workload of 25 hours.

Module: **Introduction to Global Health** Module ID/Code: PM1	UNIVERSITÄT BONN

1. Content and intended learning outcomes	
Content	Theoretical and historical fundamentals • Differences between Global Health, International Health, Public Health, Tropical Medicine (→ PM3) and Hygiene • Definitions and Concepts of Global Health • Conceptual sources of Global Health: Colonial medicine, Social medicine, development aid/cooperation, UN system, Humanitarianism (→ WPM2) Normative and political frameworks • Global Health Ethics: Equity, Justice, Solidarity, Care • Human Rights, particularly the Human Right to Health (Alma Ata, General Comment No 14, AAAQ approach) • Vertical and horizontal approaches: PHC, SPHC/GOBI-FFF, current examples • UN Agenda: MDGs and SDGs (incl. NCDs and UHC → PM2, → PM4) • Governance of Global Health (WHA/WHO and UN vs. PPPs, national interest, fragmentation) • The Big Global Health Players: UN, WHO, World Bank, GFAMT, GAVI • Difference between development and humanitarian aid, incl. the main actors (national agencies and NGOs, UNDP vs. MSF, ICRC, OCHA → WPM2) Empirical findings on health and disease • Determinants of health (Lalonde, Dahlgreen/Whitehead, Bozorgmehr) • Social determinants (Marmott/WHO Europe and worldwide) • Economic determinants (Macroeconomics and Health, Preston Curve → PM4) • Commercial determinants (food, drinks, tobacco, pharmaceuticals, health care → WPM1, → PM2, → PM4) • Measuring ill-health: epidemiology, DALY, QALY, mortality, morbidity, surveillance (→ PM2, → PM4) • Measuring health care: infrastructure, performance, staffing, monitoring (→ PM4) Socio-cultural aspects/Medical Anthropology • Medical pluralism: Medical System, Disease/Illness/Sickness, Religion/Spirituality and Health/Medicine, Social Lives of Medicines (→ PM4) • Health-seeking behavior: Healer (s)hopping, Therapy managing group • “Traditional healing”: comparison and interaction with bio-/modern medicine Public Health concepts • History: Social reform, the example of water and sanitation • Host-agent-environment paradigm • Modes of prevention and health promotion (including Ottawa Charta) Academic and Research Skills • Reading scientific texts • Summarizing scientific and non-scientific texts • Structuring thoughts and oral contributions • Time management
Learning outcomes	The students are able to … • reproduce and describe the content mentioned above in their own words.

	• assign health interventions to corresponding institutions, motives, goals and effects. • classify and assess facts in the overall context with the help of normative and political frameworks as well as scientific knowledge. • abstract from individual cases, name the underlying socio-cultural, economic, political and historical structures and draw a connection to empirical findings. • transfer aspects of political and academic concepts on health and interventions to situations they are familiar and not familiar with. Academic and Research Skills The students are able to … • understand, critically analyze, assess and summarize (in their own words) a scientific text. • analyze health policy documents with regard to objectives, values, means and arguments. • correlate their own professional experience and previous knowledge with scientific and health policy statements.

2. Teaching and learning methods

Type of instruction	Topic	Language of instruction	Group size	Overall contact time	Workload [h]
S/oS, T/oT	Theoretical and historical fundamentals	English	<35	10	25
S/oS, T/oT	Empirical findings on health and disease	English	<35	12	30
S/oS, T/oT	Normative and political frameworks, socio-cultural aspects	English	<35	22	50
S/oS, T/oT	Public Health concepts	English	<35	6	20

3. Prerequisites for the module

compulsory	None
recommended	None

4. Degree program allocation

Study program	compulsory/ elective	Semester
Global Health	compulsory	1
Humanmedizin	elective	5-10

5. Requirements for the award of credits (ECTS)		**6. Credits**
Required achievements	Presentation and critical assessment of a preset academic paper (“Journal Club”)	5
Assessment (incl. weighting) and examination language	100% oral exam English	

7. Frequency	**8. Workload**	**9. Duration**
☒ Winter semester ☐ Summer semester ☐ Winter and summer semester	Full-time students: 50h on-site teaching (incl. Journal Club) 75h self-study time Part-time students: 40h asynchronous online teaching 10h synchronous online or on-site teaching (incl. Journal Club) 75h self-study time	Full-time students: 3,25 weeks Part-time students: up to 9,75 weeks

Module coordination	
Teacher	Prof. Dr. Walter Bruchhausen, Prof. Dr. Nico Mutters
Module coordinator	Prof. Dr. Walter Bruchhausen
Institute/Department	Section Global Health, Institute for Hygiene and Public Health, University Hospital Bonn Institute for Hygiene and Public Health, University Hospital Bonn
Further information	
(Reading lists, information links etc.)	• Barber, R. M. et al. (2017) Healthcare Access and Quality Index based on mortality from causes amenable to personal health care in 195 countries and territories, 1990–2015: A novel analysis from the Global Burden of Disease Study 2015. *The Lancet*. 390 (10091), 231-266. • Eckl, J. & Hanrieder, T. (2023) The political economy of consulting firms in reform processes: the case of the World Health Organization. *Review of International Political Economy*. Available from: https://doi.org/10.1080/09692290.2022.2161112. • Farmer, P., Kleinman A., Kim, J. & Basilico, M. (eds.) *Reimagining Global Health.* Berkeley, University of California Press, pp. 1-32, 245-286. • Kawachi, I., Lang, I. & Ricciardi, W. (eds.) (2020) *Oxford Handbook of Public Health Practice* (4th ed.). Oxford, Oxford University Press. • Koplan, J. P. et al. (2009) Towards a common definition of global health. *Lancet.* 373 (9679), 1993-1995. • Lalonde, M. (1981) *A New Perspective on the Health of Canadians*. Ottawa, Minister of Supply and Services Canada. Available from: http://www.phac-aspc.gc.ca/ph-sp/pdf/perspect-eng.pdf [Accessed 3rd February 2023]. • Tulchinsky, T, H. & Varavikova E. A. (2015) *The New Public Health* (3rd ed.). Cambridge, Elsevier Academic Press. • UN Committee on Economic, Social and Cultural Rights (2000), *General Comment No. 14: The Right to the Highest Attainable Standard of Health (Art. 12)*, CESCR 22. Sess, E/C.12/2000/4, No. 11. • WHO – Commission on Social Determinants of Health (2008) *Closing the gap in a generation. Health equity through action on the social determinants of health.* WHO/IER/CSDH/08.1. Geneva, World Health Organization. Available from: https://www.who.int/publications-detail-redirect/WHO-IER-CSDH-08.1 [Accessed 3rd February 2023].

Module:
Global Clinical Care and Non-Communicable Diseases

Module ID/Code: PM2

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1. Content and intended learning outcomes

Content

Introduction to global perspectives on non-communicable diseases (NCDs)
- Overview
- DALYs and QALYs (→ PM1)
- Economic impact of NCDs

Child Health
- Integrated Management of Childhood Illness (IMCI)
- Extended Programme on Immunisation (EPI)
- Neonatology, Paediatric Critical Care and Emergencies
- Paediatric infectious diseases (→PM2)

Oncology
- Global epidemiology
- Screening and prevention
- Access to treatment (→ PM4)

Palliative Care
- Global need for Palliative Care
- Global morphine availability (→PM4)

Cardio-Vascular and Respiratory Diseases
- Global epidemiology
- Access to treatment (→ PM4)
- Environmental exposure

Neurology, Psychiatry and Mental Health
- Global epidemiology and impact
- The example of epilepsy
- Major depression
- Stigma and discrimination (→ PM1)

Maternal & Women's Health
- Prevention in women's health – gender, inequality, screening for cancer, antenatal care
- Obstetric services – maternal mortality, hemorrhage, over- and underuse of Caesarian section
- Socio-cultural impact on maternal health – contraception, abortion, STDs, HIV, FGM, violence/rape

Surgery
- Primary, Essential, Emergency and Global Surgery: e.g., Bellwether Procedures
- Challenges and opportunities of surgical super specializations
- Acute trauma care and accident-related injuries
- Ortho-plastic and reconstructive surgery under limited resources (→ WPM2)

Epidemiological, Academic and Research Skills
- Epidemiological research methodology (e.g., description, interference/ correlation, confounders, hypothesis, odds ratio/relative risk)

	• Study Types – Ecological, cross-sectional, case-control, cohort, experimental studies • Interpretation of epidemiological tables, graphs and figures • Scientific presentation with slides – presentation rules, basic speech training
Learning outcomes	The students are able to … • reproduce and describe the content mentioned above in their own words. • explain preventive, curative, rehabilitative and palliative measures to address NCDs and injuries, women's and children's health. • understand and assess the impact of a disease or injury type on a society. • decide on need and suitable provision of preventive, curative, rehabilitative and palliative measures concerning NCDs and injuries, women's and children's health. • argue for urgency and socio-economic impact of respective interventions on diseases and injuries. • prioritize interventions according to criteria such as frequency of occurrence. Academic and Research Skills The students are able to … • interpret epidemiological figures. • compare dimensions of impact, e.g., by appropriately estimating frequencies, dealing with relative numbers and thinking in numerical dimensions. • critically handle data and question their origin.

2. Teaching and learning methods

Type of instruction	Topic	Language of instruction	Group size	Overall contact time	Workload [h]
S/oS, L/oL	Introduction to NCDs	English	<35	4	10
S/oS, L/oL	Child Health	English	<35	8	20
S/oS, L/oL	Oncology	English	<35	6	15
S/oS, L/oL	Palliative Care	English	<35	6	15
S/oS, L/oL	Cardio-Vascular and Respiratory Diseases	English	<35	4	10
S/oS, L/oL	Neurology, Psychiatry and Mental Health	English	<35	8	20
S/oS, L/oL	Maternal & Women's Health	English	<35	8	25
S/oS, L/oL	Surgery	English	<35	6	10

3. Prerequisites for the module

compulsory	None
recommended	None

4. Degree program allocation

Study program	compulsory/ elective	Semester
Global Health	compulsory	1
Humanmedizin	elective	5-10

5. Requirements for the award of credits (ECTS)		**6. Credits**
Required achievements	short group presentation *or* short essay on a given topic	5
Assessment (incl. weighting) and examination language	100% oral exam English	

7. Frequency	**8. Workload**	**9. Duration**
☒ Winter semester ☐ Summer semester ☐ Winter and summer semester	Full-time students: 50h on-site teaching (incl. study achievement) 75h self-study time	Full-time students: 3,25 weeks

	Part-time students: 40h asynchronous online teaching 10h synchronous online or on-site teaching (incl. study achievement) 75h self-study time	Part-time students: up to 9,75 weeks
Module coordination		
Teacher	PD Dr. Oliver Henke, Dr. Andreas Schultz, Dr. Jan Wynands, Prof. Dr. Waltraut Merz, Prof. Dr. Dr. h.c. mult. Wolfgang Holzgreve, Prof. Dr. Lukas Radbruch, Dr. Noa Freudenthal, PD Dr. Theodor Rüber, Dr. Aileen Sitter et al.	
Module coordinator	PD Dr. Oliver Henke	
Institute/Department	Section Global Health, Institute for Hygiene and Public Health & Center for Pediatrics & Center for Obstetrics and Gynecology & Clinic for Palliative Medicine & Clinic for Epileptology, University Hospital Bonn	
Further information		
(Reading lists, information links etc.)	• Green, R. J. & Wittenberg, D. F. (eds.) (2014) *Coovadia's Paediatrics and Child Health: A manual for health professionals in developing countries* (7th ed.). Oxford, Oxford University Press. • Henke, O. et al. (2023) International cooperation to fight cancer's late-stage presentation in low- and middle-income countries. *Clinical & Experimental Metastasis*. 40, 1-3. Available from: https://doi.org/10.1007/s10585-022-10196-1. • Howlett, W. (2012) *Neurology in Africa. Clinical Skills and Neurological Disorders*. Bergen, University of Bergen. • King, M. H. & Mola, G. (eds.) (2006) *The Marie Stopes International Partnership Guide to Safe Motherhood in Developing Countries* (2nd ed.). London, Marie Stopes International. • Lancet Commission on Palliative Care and Pain Relief Study Group (2017) Alleviating the access abyss in palliative care and pain relief – an imperative of universal health coverage: the Lancet Commission report. *The Lancet*. 391, No. 10135. • Myatra, S. N., Tripathy, S. & Einav, S. (2021) Global health inequality and women – beyond maternal health. *Anaesthesia 76* (Suppl. 4), 6-9. • Subrahmanian, K. & Swamy, P. (2018) *Global Child Health. A Toolkit to Address Health Disparities*. Cham, Springer. • Swaroop, M. & Krishnaswami, S. (eds.) (2016) *Academic Global Surgery*. Cham, Springer. • WHO & Johns Hopkins Bloomberg School of Public Health (eds.) (2018) *Family Planning – A global handbook for providers*. Baltimore and Geneva, CCP and WHO. Available from: https://www.who.int/publications/i/item/9780999203705 [Accessed 4th February 2023].	

Module:
Infectious Diseases, Prevention and Control

Module ID/Code: PM3

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1. Content and intended learning outcomes	
Content	Basics in medical microbiology, infectious diseases, immunology, prevention/control • Viruses, bacteria, fungi, parasites – definitions, transmission, stages • Institutions and stakeholders (→ PM1), surveillance systems • Theoretical frameworks (NTDs, One Health, Zoonotic Diseases, etc.) • Socio-cultural and economic aspects (→ PM1) • Vaccines and Immunization: Basics and specific vaccine-preventable diseases (e.g., Tetanus, Meningococcal meningitis, Anthrax, Measles); specific and unspecific defense, cells of the immune system • Epidemiology (Morbidity/Mortality) (→ PM2), surveillance, transmission, risk factors, treatment options • Prevention and control of: Antimicrobial resistance (AMR) • Political actors, programs, initiatives, Antimicrobial stewardship • AWaRe classification (WHO) • Relevant pathogens (e.g., Carbapenem-resistant Enterobacteriaceae, MRSA incl. PVL, VRE) • Antimicrobial substance pipeline Diarrheal and other enteric pathogens • Bacterial infections (Cholera, Campylobacter, Salmonella incl. typhoid fever, Yersinia, enteropathogenic *E. coli*) • Viral infections (Rota, Noro, Hepatitis A and E, Polio) • Protozoal/parasitic infections Respiratory tract infections • Influenza, RSV, Pertussis, Pneumococci, Scarlett fever Neglected tropical diseases (NTDs), Vector-transmitted and Zoonotic infections • Case vignettes incl. schistosomiasis, soil-transmitted helminths, African trypanosomiasis, leishmaniasis, scabies, *Echinococcus,* Dengue, Chagas, Toxoplasmosis, Malaria, Chikungunya, Zika, Lassa fever, yellow fever, rabies, brucellosis Emerging infectious disease threads • Selected case studies, e.g., Mpox, Coronaviruses (incl. COVID-19), Ebola Sexually transmitted diseases • Bacteria, e.g., Syphilis, Gonorrhea, Chlamydia and mycoplasma infections • Viruses, e.g., HIV/AIDS, Hepatitis B and C (D), HPV Environmental hygiene • Air pollution • Waste and waste management: Infectious and toxic waste; waste in health care institutions • Water, Sanitation and Hygiene (WASH): Water-related diseases (Bradley classification), transmission pathways • Water security Occupational health • Infectious disease risks in different work environment • Hygiene in health institutions (→ PM2) • Hand Hygiene
Learning outcomes	The students are able to … • reproduce and describe the content mentioned above in their own words.

	• assign suitable prevention and control strategies to corresponding infectious diseases. • classify and assess aspects in the overall context of disease prevention and control with the help of theoretical frameworks as well as the current state of evidence in the relevant field of medical research. • understand, critically analyze, assess and summarize (in their own words) different infection prevention and control strategies in the context of different infectious diseases in relationship to transmission, course of disease, vaccinations and therapeutic options. • identify gaps in tools and strategies to prevent and control infectious diseases in different settings and develop ideas for applicable counter-measures.

2. Teaching and learning methods

	Type of instruction	Topic	Language of instruction	Group size	Overall contact time	Workload [h]
	S/oS, T/oT, /oL	Basics	English	<35	20	50
	S/oS, T/oT, L/oL	Epidemiology, Risk Factors, Treatment, Prevention and Control of Selected (Groups of) Diseases	English	<35	20	55
	S/oS, T/oT, L/oL	Environmental Hygiene & Occupational Health	English	<35	10	20

3. Prerequisites for the module

compulsory	None
recommended	None

4. Degree program allocation

	Study program	Compulsory/ elective	Semester
	Global Health	Compulsory	1
	Humanmedizin	Elective	5-10

5. Requirements for the award of credits (ECTS)		**6. Credits**
Required achievements	None	5
Assessment (incl. weighting) and examination language	100% written exam English	

7. Frequency	**8. Workload**	**9. Duration**
☒ Winter semester ☐ Summer semester ☐ Winter and summer semester	Full-time students: 50h on-site teaching (incl. course work) 75h self-study time Part-time students: 40h asynchronous online teaching 10h synchronous online or on-site teaching (incl. course work) 75h self-study time	Full-time students: 3,25 weeks Part-time students: up to 9,75 weeks

Module coordination

Teacher	NN
Module coordinator	Dr. Eva Mertens
Institute/Department	Section Global Health, Medical Faculty, University of Bonn, Venusberg-Campus 1, 53127 Bonn

Further information

(Reading lists, information links etc.)	• Farrar, J. & Manson, P. (2014) *Manson's Tropical Diseases* (23rd ed). Edinburgh, Elsevier Saunders. • Prüss-Üstün, A., Kay, D., Fewtrell, L. & Bartram, J. (2004) Unsafe Water, Sanitation and Hygiene. In: Ezzati, M., Lopez, A.D., Rodgers, A. & Murray, C.J.L. (eds.) *Comparative Quantification of Health Risks – Global and Regional Burden of Diseases Attributable to Selected Major Risk Factors*, Volume 2. Available from: https://apps.who.int/iris/handle/10665/42770 [Accessed 26th March 2023]. • Roser, M., Ritchie, H. & Spooner, F. (2021) *Burden of Disease*. Available from: https://ourworldindata.org/burden-of-disease [Accessed 14th March 2022]. • Ryan, K. J. & Ray, C. G. (ed.) (2004) *Sherris Medical Microbiology: An Introduction to Infectious Diseases* (4th ed.). New York, McGraw-Hill. • UNAIDS (2022) *HIV prevention 2025 road map – Getting on track to end AIDS as a public health threat by 2030*. Available from: https://www.unaids.org/en/resources/documents/2022/prevention-2025-roadmap [Accessed 26th March 2023]. • WHO (2009) *WHO guidelines on hand hygiene in health care.* Geneva, World Health Organization. Available from: https://www.who.int/publications/i/item/9789241597906 [Accessed 26th March 2023]. • WHO (2015) *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policy and programmes.* Geneva, World Health Organization. Available from: http://www.who.int/water_sanitation_health/publications/washandnutrition/en/ [Accessed 26th March 2023]. • WHO (2019) *WASH in Healthcare Facilities. Practical Steps to Achieve Universal Access to Quality Care*. Geneva, World Health Organization. Available from: https://www.who.int/publications/i/item/9789241515511 [Accessed 26th March 2023]. • WHO (2022) *Global Antimicrobial Resistance and Use Surveillance System (GLASS).* Geneva, World Health Organization. Available from: https://apps.who.int/iris/rest/bitstreams/1483639/retrieve [Accessed 26th March 2023].

Module:
Health Systems Management and Policies

Module ID/Code: PM4

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1. Content and intended learning outcomes

Content

Definitions, Theories and Policies:
- General Systems Theory – Functions, Self-Regulation, Path Dependency
- Competing Definitions and Concepts of Health Systems (→ PM1)
- 6 Building Blocks of Health Systems according to WHO (→ PM1)

Health Systems Model beyond Building Blocks:
- Interactions between health systems goals and output (i.e. the building blocks) and population needs and outcomes (effects, ageing society, people with disabilities, caregivers, consumers, solidarity groups, mothers, etc.)
- Interacting cross-cutting issues on national, regional and global levels
- Community- vs. Facility-Based Health Systems; Community Participation/ Engagement (Empowerment)

Governance & Leadership:
- Levels – National and District Health Systems
- Health Systems Strengthening and Reasons for Failure
- Leadership Training – relevance, personal and team leadership, leadership styles, delegation and motivation
- Working moral & attitude (including corruption prevention)

Health Financing:
- General – Objectives, Functions, Principles
- Domestic and External Financing – Health Insurance, Country Examples
- Joint Financing – Global Public-Private-Partnerships, e.g., GAVI, Global Fund, Covax

Health Information:
- Health Information Systems (HIS) – Key Functions, Expectations, Examples
- Epidemiology – Repetition of Indicators, Tools, Surveillance, and Priorities (→ PM1)
- Health Literacy – Concept, Impact, Improvement, e.g., Prevention & Screening
- Communication: Risk Communication, Crisis Management

Healthcare Workforce:
- Importance – Facts, Figures, Shortage
- Policies – Task Shifting, Ideal Mix, Examples, Global Strategy
- Challenges and Reactions – Brain Drain/ Care Drain/ Exit Routes, WHO Initiative 'Workforce 2030'

Essential Medicines and Health Technologies:
- Medicines – Concept, Supply Chains, Quality Assurance, Regulatory Environment Including Harmonization
- Technology – Definitions, HTA, Priority Medical Devices, Capacity-Building

Health Service Delivery (→ PM2):
- Quality – Organization, Performance, Indicators (QI/QM/QA)
- Levels – Primary, Secondary, Tertiary, Task Sharing and Referral
- Responsiveness – Clients' Satisfaction, Gender Equality, Vulnerable Groups
- Patient Safety – Patient Safety Culture, Medical Error, Adverse Event, System Performance, Patient Safety in medium and low resource setting, high reliable organizing

	Academic and Research Skills • Reading and contextualizing policy documents • Citation practice and good academic practice • Literature search • Multi-, inter- and transdisciplinary research • Writing minutes and a result protocol
Learning outcomes	The students are able to … • outline the different aims, types, constituents, origins and norms of health systems. • highlight the most important factors and their preconditions for each building block. • distinguish between structural and procedural, internal and external, collective and individual causes of insufficient functioning in health systems. • identify weaknesses and threats of health systems or their building blocks and deduce possible causes. • identify potential for change to address these deficiencies in accordance with scientific findings and relevant policy documents. • argue for their reflected positions on past, ongoing or necessary health system reforms. Academic and Research Skills The students are able to … • interpret and discuss policy documents, particularly documents issued by UN organizations and national governments. • summarize the main aspects of a seminar/lecture in brief and to the point, both in writing (as a protocol/minutes) and orally. • question their own and others' leadership behavior and critically reflect upon it.

2. Teaching and learning methods

Type of instruction	Topic	Language of instruction	Group size	Overall contact time	Workload [h]
L/oL, S/oS	Introduction & Cross-Cutting Issues	English	<35	8	16
L/oL, W	Governance, incl. Leadership Training	English	<35	10	19
L/oL, S/oS	Financing	English	<35	8	20
L/oL, S/oS	Health Information	English	<35	6	15
L/oL, S/oS	Health Workforce	English	<35	4	10
L/oL, S/oS	Essential Medicines and Health Technologies	English	<35	6	20
L/oL, S/oS	Health Service Delivery	English	<35	8	25

3. Prerequisites for the module

compulsory	None
recommended	None

4. Degree program allocation

Study program	compulsory/ elective	Semester
Global Health	compulsory	1
Humanmedizin	elective	5-10

5. Requirements for the award of credits (ECTS)		**6. Credits**
Required achievements	Protocol	5

Assessment (incl. weighting) and examination language	100% presentation with paper English	

7. Frequency	8. Workload	9. Duration
☒ Winter semester ☐ Summer semester ☐ Winter and summer semester	Full-time students: 50h on-site teaching (incl. study achievement) 75h self-study time Part-time students: 40h asynchronous online teaching 10h synchronous online or on-site teaching (incl. study achievement) 75h self-study time	Full-time students: 3,25 weeks Part-time students: 9,75 weeks

Module coordination	
Teacher	Prof. Dr. Walter Bruchhausen, Dr. Andreas Schultz, Dr. Jan Wynands, action medeor e.V., PD Dr. Oliver Henke, Prof. Dr. Matthias Weigl, Dr. Nikoloz Gambashidze, Dr. Sibylle Gerstl et al.
Module coordinator	Dr. Andreas Schultz
Institute/Department	Section Global Health, Institute for Hygiene and Public Health, University Hospital Bonn Institute for Patient Safety, University Hospital Bonn

Further information	
(Reading lists, information links etc.)	• Amonoo-Lartson, R., Ebrahim, G. J., Lovel, H.J. & Ranken, J. P. (1984) *District health care: Challenges for planning, organization, and evaluation in developing countries.* London, Macmillan Publishers. • Farmer, P., Kleinman A., Kim, J. & Basilico, M. (eds.) (2013) *Reimagining Global Health*. Berkeley, University of California Press, pp. 133-211. • Lankester, T. & Grills, N. J. (2019) *Setting up community health and development programmes in low and middle income settings* (4th ed.). Oxford, Oxford University Press. • Pencheon, D., Guest, C. & Melzer, D. (eds.) (2006) *Oxford Handbook of Public Health Practice* (2nd ed.). Oxford, Oxford University Press. • Skolnik, R. (2019). *Global Health 101* (4th ed.). Burlington, Jones & Bartlett, pp. 117-163. • Stockman, D. (1994) *Community assessment: Guidelines for developing countries*. Rugby, Practical Action Publishing. • Walley, J. & Wright, J. (2010) *Public Health: An action guide to improving health* (2nd ed.). Oxford, Oxford University Press. • WHO (2016) *Global strategy on human resources for health: Workforce 2023*. Geneva, World Health Organization. Available from: https://www.who.int/publications/i/item/9789241511131 [Accessed 15th February 2023]. • WHO (2000) *The world health report 2000: health systems- improving performance.* Geneva, World Health Organization. Available from: https://apps.who.int/iris/handle/10665/42281 [Accessed 15th February 2023]. • WHO (2012) *The world health report 2010: health systems financing – the path to universal coverage*. Geneva, World Health Organization. Available from: https://apps.who.int/iris/handle/10665/44371 [Accessed 15th February 2023]. • WHO (2013) *The world health report 2013: Research for universal health coverage*. Geneva, World Health Organization. Available from: https://www.who.int/publications/i/item/9789240690837 [Accessed 15th February 2023]. • Witter, S., Ensor, T., Jowett, M. & Thompson, R. (2000) *Health economics for developing countries: A practical guide*. London, Macmillan Education.

Module:
Thesis Colloquium

Module ID/Code: PM5

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1. Content and intended learning outcomes

Content	Presentation and General Communication Skills: • Introduction to presentation tools/ software (other than PowerPoint) • Characteristics of professional (scientific) oral presentations • Feedback techniques • Moderation techniques Science Communication: • Transfer of knowledge into policy and policy into practice • Five dimensions of science communication – topic, target group, communication goal, medium, style Repetition of Academic and Scientific Basics & Consolidation of Skills: • Good academic practice, citation practice, structuring texts, dealing with scholarly and grey literature, scientific writing • Time management and self-organization skills • Overview of research methodologies (e.g., scoping and systematic review, questionnaire study/ survey, qualitative study, secondary data analysis, natural experiments) and systematic, scientifically sound approaches to given problems (e.g., policy analysis, stakeholder mapping, prioritization) • Research Ethics
Learning outcomes	The students are able to .. • present the results of their Master thesis in a target-group oriented manner in the form of a professional oral presentation. • use appropriate tools to visualize the oral presentation. • answer questions by others concerning their thesis topic. • critically reflect on their thesis topic, methodology and overall approach taking into account the feedback provided during the colloquium. • give sound feedback to others' presentations.

2. Teaching and learning methods

Type of instruction	Topic	Language of instruction	Group size	Overall contact time	Workload [h]
T/oT	Repetition of Basics & Consolidation of Skills	English	<35	15	40
S/oS, W	Science Communication	English	<35	15	20
T/oT	Presentation and General Communication Skills (including the students' thesis presentations)	English	<35	20	65

3. Prerequisites for the module

compulsory	Successful completion of modules PM1 to PM4 & successful registration of thesis topic
recommended	Successful acquisition of 30 ECTS

4. Degree program allocation

	Study program	compulsory/ elective	Semester
	Global Health	Compulsory	2

5. Requirements for the award of credits (ECTS)		**6. Credits**
Required achievements	None	5
Assessment (incl. weighting) and examination language	100% presentation English	

7. Frequency	**8. Workload**	**9. Duration**
☐ Winter semester ☒ Summer semester ☐ Winter and summer semester	Full- and part-time students: 50h hybrid teaching 75h self-study time	Full-time students: 3-6 months Part-time students: 9-18 months

Module coordination	
Teacher	NN, supervisors individually appointed by the Examination Board
Module coordinator	Prof. Dr. Walter Bruchhausen
Institute/Department	Section Global Health, Institute for Hygiene and Public Health, University Hospital Bonn

Further information	
(Reading lists, information links etc.)	• Illingworth, S. & Allen, G. (2020) *Effective science communication: a practical guide to surviving as a scientist* (2nd ed.). Bristol, IOP Publishing. • Jamieson, K. H., Kahan, D. M. & Scheufele, D. A. (eds.) (2017) *The Oxford handbook of the science of science communication*. New York, Oxford University Press. • Medmissio. (2023) *MEDBOX. The Aid Library*. Available from: https://medbox.org/ [Accessed 5th February 2023]. • Swales, J. M. & Feak, C. B. (2012) *Academic writing for graduate students: essential tasks and skills* (3rd ed.). Ann Arbor, Mich., University of Michigan Press.

Module:
Master Thesis

Module ID/Code: PM6

UNIVERSITÄT BONN

1. Content and intended learning outcomes	
Content	The topic of the thesis must be clearly linked to the content of Global Health and be of interdisciplinary or intersectoral nature. The practical relevance of the thesis must be demonstrated. During the thesis phase, the supervisor and the student equally are responsible for • regular contact to discuss the thesis progress (at least once per month), • timely submission of a proposed title to the examination board, • selection of suitable strategies for research and manuscript (inclusion and exclusion criteria, material and methods, research question, bibliography, tables and figures).
Learning outcomes	The students are able to … • independently execute a well-defined and practically relevant research project. • independently apply techniques of scientific work and good academic practice. • appropriately use scholarly literature and grey literature (particularly UN and WHO documents or unpublished reports). • critically reflect on current political and scientific developments. The students are aware of the central issues, practical impacts and various challenges of the field they work in. The students show a solution-oriented approach to answer the research question.

2. Teaching and learning methods

	Type of instruction	Topic	Language of instruction	Group size	Overall contact time	Workload [h]
	T/oT	Research and Writing under Supervision	English	1	8	375

3. Prerequisites for the module	
compulsory	Successful completion of modules PM1 to PM4
recommended	Successful acquisition of 30 ECTS

4. Degree program allocation

	Study program	compulsory/ elective	Semester
	Global Health	Compulsory	2

5. Requirements for the award of credits (ECTS)		**6. Credits**
Required achievements	None	15
Assessment (incl. weighting) and examination language	100% thesis English	

7. Frequency	**8. Workload**	**9. Duration**
☐ Winter semester ☐ Summer semester ☒ Winter and summer semester	Full- and part-time students: 375h thesis	Full-time students: 3-6 months Part-time students: 9-18 months

Module coordination	
Teacher	Supervisors individually appointed by the Examination Board
Module coordinator	Prof. Dr. Walter Bruchhausen
Institute/Department	Section Global Health, Institute for Hygiene and Public Health, University Hospital Bonn

Further information

(Reading lists, information links etc.)	• Bui, Y. N. (2019) *How to Write a Master's Thesis* (3rd ed.). Los Angeles, SAGE. • Lea, D., Bull V., Webb S.S. & Duncan R. (ed.) (2014) *Oxford Learner's Dictionary of Academic English*. Oxford, Oxford University Press. • Parija, S. C. & Kate, V. (eds.) (2018) *Thesis Writing for Master's and Ph.D. Program*. Singapore, Springer.

Module: **Food and Nutrition Security in the Framework of Global Health** Module ID/Code: WPM1	UNIVERSITÄT BONN

1. Content and intended learning outcomes	
Content	International food and nutrition security • Basic concept of food and nutrition security (FNS) • (Scientific) Reports on the current food situation (Agriculture and Global Nutrition Report) • Basic concepts and measures of epidemiology • Importance for Public Health and prevention of diseases • Learning and applying various concepts of FNS: including Triple Burden of Malnutrition, UNICEF Framework • One Health approach Nutrition transition & micronutrient deficiencies • History and impact of the Nutrition Transition • Measures to combat micronutrient deficiencies Biodiversity and -security along the value chain • Biodiversity along the value chain • Factors along the value chain that influence disease incidence: Biotic and abiotic, environment, genetics • Biosecurity and hygiene along the value chain Non-governmental work in the field of international FNS • Emergency aid in food crisis situations • Current projects in the field of site-appropriate agriculture Farm visit • Forage production • Dairy cow husbandry Research and Academic Skills • Collection and evaluation of anthropometric parameters in the context of scientific studies • Project planning covering current topics of nutrition and food security in Global Health
Learning outcomes	The students are able to … • reproduce and apply the definition of FNS, its concepts, disease prevention and interventions taking into account the One Health approach. • explain the Triple Burden of Malnutrition, describe and apply measures to address micronutrient deficiencies. • describe the tasks and roles of actors and research centers in the field of food security. • evaluate the significance of reports on the current food situation (especially the Agriculture and Nutrition Report). • assess the basic concepts for planning and conducting nutritional studies with a special focus on dietary assessment instruments in low-and middle-income countries. • collect and evaluate anthropometric parameters and assess their informative value. • plan and prepare a project related to nutrition and/or food security.

2. Teaching and learning methods						
	Type of instruction	Topic	Language of instruction	Group size	Overall contact time	Workload [h]
	L/oL, prT, T	International food and nutrition security	English	<35	22	47
	L/oL, prT, T	Nutrition transition & micronutrient deficiencies	English	<35	6	15
	L/oL, S/oS	Biodiversity and -security along the value chain	English	<35	10	25
	L/oL	Non-governmental work in the field of international FNS	English	<35	4	8
	E	Farm visit	English	<35	4	5
	T	Collection and evaluation of anthropometric parameters	English	<35	4	25

3. Prerequisites for the module	
compulsory	None
recommended	None

4. Degree program allocation			
	Study program	compulsory/ elective	Semester
	Global Health	elective	1
	Humanmedizin	elective	5-10

5. Requirements for the award of credits (ECTS)		6. Credits
Required achievements	Group presentation	5
Assessment (incl. weighting) and examination language	100% written exam English	

7. Frequency	8. Workload	9. Duration
☒ Winter semester ☐ Summer semester ☐ Winter and summer semester	Full-time & part-time students: 50h on-site teaching (incl. course work) 75h self-study time	Full-time & part-time students: 12 weeks

Module coordination	
Teacher	Dr. Maike Schnermann, NN
Module coordinator	Prof. Dr. Ute Nöthlings, Dr. Maike Schnermann
Institute/Department	Institute of Nutritional and Food Sciences (IEL) – Nutritional Epidemiology

Further information	
(Reading lists, information links etc.)	• WHO (2017) *The double burden of malnutrition: policy brief*. Geneva, World Health Organization. Available from: https://www.who.int/publications/i/item/WHO-NMH-NHD-17.3 [Accessed 8th March 2023]. • FAO (2016) *Minimum Dietary Diversity for Women – A Guide to Measurement.* Rome, FAO & FANTA. Available from: https://www.fao.org/3/i5486e/i5486e.pdf [Accessed 8th March 2023]. • FAO (2018) *Dietary Assessment: A resource guide to method selection and application in low resource settings.* Rome, FAO. Available from: https://www.fao.org/3/i9940en/I9940EN.pdf [Accessed 8th March 2023]. • Global Nutrition Report (2022) *2022 Global Nutrition Report: Stronger commitments for greater actions.* Available from:

	https://globalnutritionreport.org/reports/2022-global-nutrition-report/ [Accessed 8th March 2023]. • FAO, IFAD, UNICEF, WFP & WHO (2022) *The State of Food Security and Nutrition in the World 2022: Repurposing food and agricultural policies to make healthy diets more affordable.* Rome, FAO. Available from: https://data.unicef.org/resources/sofi-2022/ [Accessed 8th March 2023]. • FAO (2022) *The State of Food and Agriculture 2022: Leveraging automation in agriculture for transforming agrifood systems.* Rome, FAO. Available from: https://www.fao.org/3/cb9479en/cb9479en.pdf [Accessed 8th March 2023]. • Gross, R., Schöneberger, H.G., Pfeifer, H. & Preuss, H. (2000) *Four Dimensions of Food and Nutrition Security: Definitions and Concepts.* Available from: http://fpmu.gov.bd/agridrupal/sites/default/files/Four_Dimension_of_FS.pdf [Accessed 8th March 2023]. • Popkin, B. M. (2006) Global nutrition dynamics: the world is shifting rapidly toward a diet linked with noncommunicable diseases. *The American Journal of Clinical Nutrition*. 84 (2), 289-298. Available from: https://doi.org/10.1093/ajcn/84.2.289 [Accessed 8th March 2023]. • Hutton, G. & Chase, C. (2016) The Knowledge Base for Achieving the Sustainable Development Goal Targets on Water Supply, Sanitation and Hygiene. *Int J Environ Res Public Health*. 13(6), 536. Available from: https://doi.org/10.3390/ijerph13060536 [Accessed 8th March 2023]. • Pérez-Escamilla, R. & Segall-Corrêa, A. M. (2008) Food insecurity measurement and indicators. *Revista de Nutrição* 21.

Module: **Humanitarian Aid and Development Cooperation in Health** Module ID/Code: WPM2	UNIVERSITÄT BONN

1. Content and intended learning outcomes	
Content	Introduction • History and Ethics of Humanitarian Assistance and Development Cooperation • Humanitarian Emergency Aid: Actors and Coordination (e.g., ICRC, MSF, Malteser; UN system, UN OCHA/UNDAC; EU Civil Protection Mechanism → WPM4) • Reflection of the Role of Healthcare Professionals and their Preparation Humanitarian Negotiation • Challenges and Dilemmas • Typology of Negotiations • Identification of Priorities and Objectives Intercultural Sensitivity in Medical Contexts • Scales and Dimensions of Culture • Intercultural Challenges in Healthcare Health Services in Disasters, Crises and Armed Conflicts • Emergency epidemiology • Healthcare in armed conflicts (e.g., war surgery) • Violence against Healthcare • Misinformation and coping mechanisms • Evaluation of Humanitarian Aid • The Sphere Project Health Services and Risks in Development Programs • Refugee Health – Camps, Mobility/Continuity of Care • Linking Relief, Rehabilitation and Development (LRRD), Transition Assistance • Development-Oriented Emergency Relief • Example of German Development Politics in Health (e.g., focus on UHC, One Health) • Building Resiliency in a Country • Structural Transitional Aid for Bridging Development Cooperation and Humanitarian Aid • Reducing Post-disaster Complexity in Health Systems • Streamlining Donor Aid with in-country Programs • Tangible Interventions for Rehabilitation, Relief and Development • Quality of Care as Neglected Drive for Development
Learning outcomes	The students are able to … • replicate the main components and functions of the international humanitarian system and development policies. • identify most urgent health needs in disasters and armed conflicts to recommend, design and coordinate respective responses. • take a constructive and critical stance towards the hidden agendas of different stakeholders involved in humanitarian response. • distinguish and differentiate the roles of the different humanitarian agencies during sudden onset and long-term responses.

	• analyze a complex, multi-faceted context and map the network of actors involved in a certain scenario. • adapt their communication to the circumstances given (e.g., by applying de-escalation skills and/or knowledge on intercultural sensitivity). • identify and critically evaluate various sources and channels of information from different stakeholders.

2. Teaching and learning methods

Type of instruction	Topic	Language of instruction	Group size	Overall contact time	Workload [h]
L/oL, S/oS	Introduction	English	<35	6	15
L/oL, W/oW	Humanitarian Negotiation	English	<35	14	40
L/oL, S/oS	Intercultural Sensitivity in Medical Contexts	English	<35	4	10
L/oL, S/oS	Health Services in Disasters, Crises and Armed Conflicts	English	<35	11	30
L/oL, S/oS	Health Services and Risks in Development Programs	English	<35	15	30

3. Prerequisites for the module

compulsory	None
recommended	None

4. Degree program allocation

Study program	compulsory/ elective	Semester
Global Health	elective	1
Humanmedizin	elective	5-10

5. Requirements for the award of credits (ECTS)		**6. Credits**
Required achievements	presentation	5
Assessment (incl. weighting) and examination language	100% Written Exam English	

7. Frequency	**8. Workload**	**9. Duration**
☒ Winter semester ☐ Summer semester ☐ Winter and summer semester	Full-time students: 50h on-site teaching (incl. study achievement) 75h self-study time Part-time students: 30h asynchronous online teaching 20h synchronous online/on-site teaching (incl. study achievement) 75h self-study time	Full-time students: 3,25 weeks Part-time students: up to 9,75 weeks

Module coordination

Teacher	Dr. Jan Wynands, Prof. Dr. Walter Bruchhausen, Dr. Peter Schmitz, Sophie-Bo Heinkel, Dr. Andreas Schultz, Prof. Dr. Tom Potokar, Dr. Sophie de Vries, Dr. Sibylle Gerstl
Module coordinator	Dr. Jan Wynands
Institute/Department	Section Global Health, Institute for Hygiene and Public Health, University Hospital Bonn ICRC, Centre of Competence on Humanitarian Negotiation (CCHN)

Further information

(Reading lists, information links etc.)	• Druce, P., Bogatyreva, E., Siem, F. F., Gates, S., Kaade, H., Sundby, J., Rostrup, M., Andersen, C., Rustad, S. C. A., Tchie, A., Mood, R., Nygård, H. M., Urdal, H. & Winkler, A. S. (2019) Approaches to protect and maintain health care services in armed conflict – meeting SDGs 3 and 16. *Conflict and Health*. 13 (2). Available from: https://doi.org/10.1186/s13031-019-0186-0 [Accessed 8th March 2023]. • Garry, S., & Checchi, F. (2020). Armed conflict and public health: Into the 21st century. *Journal of Public Health*. 42 (3), e287-e298. Available from: https://doi.org/10.1093/pubmed/fdz095 [Accessed 8th March 2023]. • WHO (2019) *Health Emergency and Disaster Risk Management Framework*. Geneva, World Health Organization. Available from: https://apps.who.int/iris/bitstream/handle/10665/326106/9789241516181-eng.pdf [Accessed 8th March 2023]. • ICRC/Center of Competence for Humanitarian Negotiation (2020) *CCHN Negotiator Handbook.* Available from: https://www.icrc.org/en/publication/nh-cchn-negotiator-handbook [Accessed 8th March 2023]. • IFRC (2020*) World Disasters Report 2020*. Available from: https://www.ifrc.org/document/world-disasters-report-2020 [Accessed 3rd February, 2023]. • IFRC (2022) *Code of Conduct for the Movement and NGOs in Disaster Relief*. Available from: https://www.ifrc.org/our-promise/do-good/code-conduct-movement-ngos [Accessed 3rd February 2023]. • Benner, M.T., Schmitz, K.P. (2009) *Indicators and Reference Data: A Practical Tool for Project Managers in Humanitarian Aid*. Cologne, Malteser International. Available from: https://reliefweb.int/report/world/indicators-and-reference-data-practical-tool-project-managers-humanitarian-aid [Accessed 8th March 2023]. • MapAction (2011) *Field Guide to Humanitarian Mapping.* Available from: http://www.mapaction.org/component/mapcat/download/2426.html?fmt=pdf [Accessed 8th March 2023]. • OCHA - United Nations (2022) *Disaster Response in Asia and the Pacific* Available from: https://asiadisasterguide.unocha.org/III-humanitarian-actors.html [Accessed 3rd February 2023]. • Spiegel, P.B., Checchi, F., Colombo, S. & Paik, E. (2010) Health-care needs of people affected by conflict: future trends and changing frameworks. *The Lancet.* 375 (9711), 341-45. Available from: https://doi.org/10.1016/S0140-6736(09)61873-0. • The International Charter Space and Major Disasters. (n.d) *Charter activations*. Available from: https://www.disasterscharter.org/web/guest/activations/charter-activations [Accessed 8th March 2023]. • IFRC, Johns Hopkins University (2008) *The Johns Hopkins and Red Cross Red Crescent Public Health Guide in Emergencies*. Available from: https://reliefweb.int/report/world/johns-hopkins-and-red-cross-red-crescent-public-health-guide-emergencies-second-edition [Accessed 8th March 2023]. • Sphere Association (2018) *The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response*. Available from: https://reliefweb.int/report/world/sphere-handbook-humanitarian-charter-and-minimum-standards-humanitarian-response-2018 [Accessed 8th March 2023].

Module:
Spatial Health Assessment

Module ID/Code: WPM3

UNIVERSITÄT BONN

1. Content and intended learning outcomes

Content	General aspects of Health Geography
	• General definition of Geography and Health
	• History of Medical Geography
	• Use of maps in epidemiology and surveillance
	• Synopsis of technical background (GIS systems)
	• Overview of geostatistical methods
	• Introduction to remote sensing
	
	Reading and interpretation of health maps
	• Basic concepts of cartography
	  ○ Projections
	  ○ Scales and complexity
	  ○ Importance of target group
	• Understanding maps
	• Data visualization
	• Scope and advantages of interactive dashboards
	
	Mapping health data
	• Sources of health data
	• Sources of health maps
	• Data sampling; challenges of global data sources
	• Data and graphic representation
	  ○ Respective statistical methods
	  ○ Methods of classification

Learning outcomes	The students are able to … • reproduce and describe general aspects of Health Geography in their own words. • describe the basic rules of reading and interpreting spatial visualization of health-related events and risks. • read, interpret and evaluate health data and health maps. • replicate the principles of acquiring, classifying and processing health data for mapping. • assess the suitability of data sets for visual representation. • understand, critically analyze and summarize (in their own words) health data sets and their visualization.

2. Teaching and learning methods

Type of instruction	Topic	Language of instruction	Group size	Overall contact time	Workload [h]
S/oS	General aspects of Health Geography	English	<35	10	25
S/oS, T/oT	Reading and interpretation of health maps	English	<35	20	50
S/oS, T/oT	Mapping Health Data	English	<35	20	50

3. Prerequisites for the module

compulsory	None
recommended	None

4. Degree program allocation

	Study program	compulsory/ elective	Semester
	Global Health	elective	2
	Humanmedizin	elective	all

5. Requirements for the award of credits (ECTS)		**6. Credits**
Required achievements	Active participation in the group work, compulsory attendance in 75% of the course	5
Assessment (incl. weighting) and examination language	100% oral exam English	

7. Frequency	**8. Workload**	**9. Duration**
☐ Winter semester ☒ Summer semester ☐ Winter and summer semester	Full-time & part-time students: 50h on-site teaching (incl. study achievement) 75h self-study time	Full-time & part-time students: 12 weeks

Module coordination	
Teacher	Christoph Höser, NN
Module coordinator	Dr. Andrea Rechenburg
Institute/Department	GeoHealth Center, Institute for Hygiene and Public Health, University Hospital Bonn

Further information	
(Reading lists, information links etc.)	• Garg, P. K., Tripathi, N. K., Kappas, M. & Gaur, L. (eds). (2022) *Geospatial data science in healthcare for society 5.0.* Singapore, Springer Singapore. • Khashoggi, B. F. & Murad, A. (2020) Issues of Healthcare Planning and GIS: A Review. *ISPRS International Journal of Geo-Information.* 9 (6), 352. • Kimerling, A. J., Buckley, A. R., Muehrcke, P. & Muehrcke, J. O. (2016) *Map use: reading list, analysis, interpretation* (8th ed.). Redlands, California, Esri Press Academic. Available from: https://www.esri.com/en-us/esri-press/browse/map-use-reading-analysis-interpretation [Accessed 6th June 2023]. • Solís, P. & Zeballos, M. (eds.) (2023) *Open Mapping towards Sustainable Development Goals: Voices of YouthMappers on Community Engaged Scholarship.* Cham, Springer International Publishing. Available from: https://link.springer.com/10.1007/978-3-031-05182-1 [Accessed 6th June 2023]. • Uzoma, I. (2020) Medical Geography - Concepts, Techniques and Approaches. In Olorunfemi, J. F. & Tilakasiri, S. L. (eds.) *Human Geography - Concepts, Approaches and Trends.* Sri Lanka, Stamford Lake Publication, pp. 139-162 • Wang, F. (2020) Why public health needs GIS: a methodological overview. *Annals of GIS*. 26 (1), 1-12. • Wells, J., Grant ,R., Chang, J. & Kayyali, R. (2021) Evaluating the usability and acceptability of a geographical information system (GIS) prototype to visualise socio-economic and public health data. *BMC Public Health.* 21 (1), 2151.

Module: **Vulnerability, Disaster Risk Management, Emergency Preparedness and Response** Module ID/Code: WPM4	
1. Content and intended learning outcomes	
Content	Understanding risk: key concepts and latest developments • Relevance of the topic (why understanding risks matters) • Recent advances in our understanding of risks • Introduction to key conceptual risk frameworks Climate change, health and human mobility • Understanding how climate change can impact health and act as a trigger for human mobility • Attributing human mobility and health outcomes to climate change • How climate related mobility can impact on health outcomes Resilience of critical (health) infrastructures: social and technical perspectives • Introduction to critical infrastructures, their interconnectedness and societal dependencies • Social and technical perspectives on critical infrastructure resilience • Risk, vulnerability and preparedness in the context of health infrastructures Best practices and policy perspectives • International best practices on implementing key concepts and learnings • "Science to policy" practice Climate policy frameworks and public health • Overview of the international climate regime and policy-making • National level climate adaptation planning and its intersections with Public Health policy Introduction to Preparedness • Multi-hazard Early Warning Systems (MHEWS) • Anticipatory Action (AA) including geospatial support technologies, such as GIS, drones (UAV) and remote sensing International Disaster Risk Management and Humanitarian Relief • International coordination architectures and structures (European Union Civil Protection Mechanism and UN system) , including the role of UN OCHA, UNDAC and the UN Cluster System) • Role of emergency medical teams (EMTs) during large-scale response/relief operations Student Presentations • Individual preparation and in class delivery of a health-related topic related to the learnings in class, such as Vulnerability, Disaster Risk Management or Emergency Preparedness and Response
Learning outcomes	• Students gain insights into UNU´s working environment and its academic and non-academic partners' work at the interface of science-policy and practice. • Students learn to apply health-related vulnerability and risks concepts in international cooperation.

	• Students understand possible challenges related to climate change and social mobility. • Students acquire a comprehensive knowledge of structures, workflows and practical challenges of international organizations dealing with disaster risk management, preparedness and humanitarian response. • Students are capable to estimate basic safety and security related aspects. • Students gain insights in the potential and application of multi-hazard Early Warning Systems, remote sensing and GIS applications, Spatial Analysis as well as Spatial Data Infrastructures and Services. • Students get the opportunity to present a problem chosen among topics related to Vulnerability, Disaster Risk Management, Emergency Preparedness and Response to their peers in form of a TED-style talk.

2. Teaching and learning methods

Type of instruction	Topic	Language of instruction	Group size	Overall contact time	Workload [h]
S	Understanding risk: key concepts and latest developments	English	24	4	6
oS	Climate change, health and human mobility	English	24	8	15
S	Resilience of critical (health) infrastructures: social and technical perspectives	English	24	4	10
S/oS	Understanding risk: best practices and policy perspectives	English	24	4	10
S	Climate policy frameworks and public health	English	24	4	15
oS	Guest lectures: Regional/Country case studies	English	24	8	15
S/oS	Introduction to preparedness	English	24	4	12
S	International Disaster Risk Management and Humanitarian Relief	English	24	4	12
S	Student presentations	English	24	10	30

3. Prerequisites for the module

compulsory	None
recommended	None

4. Degree program allocation

Study program	compulsory/ elective	Semester
Global Health	elective	2
Humanmedizin	elective	5-10

5. Requirements for the award of credits (ECTS)		**6. Credits**
Required achievements	none	5

Assessment (incl. weighting) and examination language	100% presentation English	

7. Frequency	8. Workload	9. Duration
☐ Winter semester ☒ Summer semester ☐ Winter and summer semester	Full-time/ part-time students: 50h on-site teaching and final presentation 75h self-study and preparation time	Full-time/ part-time students: 12 weeks

Module coordination	
Teacher	Dr. Michael Hagenlocher, Dr. Robert Oakes, Sönke Kreft, Dr. Himanshu Shekhar, Edward Sparkes, Dr. Simone Sandholz, Prof. Dr. Jörg Szarzynski, Prof. Shinichi Egawa, Prof. Christo Heunis, Rita Rhayem
Module coordinator	Karen Hattenbach, Prof. Dr. Jörg Szarzynski
Institute/Department	United Nations University Institute for Environment and Human Security (UNU-EHS)
Further information	
(Reading lists, information links etc.)	• Casajus Valles, A., Marin Ferrer, M., Poljanšek, K. & Clark, I. (eds.) (2020) *Science for Disaster Risk Management 2020: acting today, protecting tomorrow.* The Disaster Risk Management Knowledge Centre. EUR 30183 EN. Luxembourg, Publications Office of the European Union. Available from: doi:10.2760/438998. • Casajus Valles, A., Marin Ferrer, M., Poljanšek, K. & Clark, I. (eds.) (2020) *Executive Summary of the report Science for Disaster Risk Management 2020: acting today, protecting tomorrow.* The Disaster Risk Management Knowledge Centre. EUR 30183 EN. Luxembourg, Publications Office of the European Union. Available from: doi:10.2760/919253 • UNU-EHS & UNDRR (2022) *Rethinking risks in times of COVID-19.* Bonn, United Nations University. Available from: https://unupublications.org/ehs/carico/ [Accessed 4th May 2023]. • Oakes, R., Banerjee, S. & Warner, K. (2019) Human mobility and adaptation to environmental change. In: *International Organization for Migration. IOM World Migration Report.* Geneva, United Nations, pp. 253-269. Available from: https://doi.org/10.18356/b1710e30-en • Watts, N., Adger, W. N., & Agnolucci, P. (2015) Health and climate change: policy responses to protect public health. *The Lancet*, 386 (10006), 1861-1914. Available from: https://doi.org/10.1016/S0140-6736(15)60854-6 • World Meteorological Organization (WMO) (2018) *Multi-hazard Warning System: A Checklist*. Geneva, WMO. Available from: https://ane4bf-datap1.s3-eu-west-1.amazonaws.com/wmocms/s3fs-public/ckeditor/files/Multi-hazard_Early_Warning_Systems_A_Checklist.pdf?fVgoQYM7LhPb3oR0V97j2.Qkjs3Wc5Rq [Accessed 4th May 2023]. • UN OCHA (2018) *On-Site Operations Coordination Centre (OSOCC) Guidelines.* Geneva, United Nations. Available from: https://reliefweb.int/report/world/site-operations-coordination-centre-osocc-guidelines-2018-enar [Accessed 23rd August 2023].

Module:
Sustainable Development as Guiding Principle for Health

Module ID/Code: WPM5

UNIVERSITÄT BONN

1. Content and intended learning outcomes

Content	**Health as cross-cutting theme for development**
	• Health as contributor and beneficiary of sustainable development
	• Sustainability challenges of healthcare and health interventions
	• Integrated health approaches, highlighting complex interactions between health, social, economic and environmental systems
	  ○ Climate change
	  ○ Zoonotic diseases
	• Bilateral and multilateral cooperation for sustainable development
	• Globalization & challenges of translating universal sustainability targets into effective local actions for health
	
	Measurement, evaluation and implementation of sustainable development in Public Health
	• 2030 Agenda principles, their usefulness in evaluation and their links to health (benefits)
	• Different evaluation types and tools for sustainable development
	
	Sustainability interactions using case studies
	• Critical assessment of health and sustainability interactions
	• Extracting best-practices and developing recommendations for action
	• Examples of local and regional actions

Learning outcomes	The students are able to … • associate health benefits with health-related and non-health-related goals for sustainable development. • illustrate and critically assess the sustainability implications of healthcare and health-related development interventions. • distinguish and categorize the environmental interactions of public health systems globally. • apply evaluation principles and methodologies to specific case studies on sustainability and health.

2. Teaching and learning methods

Type of instruction	Topic	Language of instruction	Group size	Overall contact time	Workload [h]
S/oS, T/oT	Health as cross-cutting theme for development	English	<35	17	20
S/oS, T/oT	Measurement, evaluation and implementation of sustainable development in public health	English	<35	15	18
T/oT / W	Sustainability interactions using case studies	English	<35	18	87

3. Prerequisites for the module

compulsory	None
recommended	None

4. Degree program allocation

	Study program	compulsory/ elective	Semester
	Global Health	elective	2
	Humanmedizin	elective	all

5. Requirements for the award of credits (ECTS)		**6. Credits**
Required achievements	Presentation, active participation in seminars and workshop	5
Assessment (incl. weighting) and examination language	100% written assignment English	

7. Frequency	**8. Workload**	**9. Duration**
☐ Winter semester ☒ Summer semester ☐ Winter and summer semester	Full-time & part-time students: 50h on-site teaching (incl. study achievement) 75h self-study time	Full-time & part-time students: 5 weeks

Module coordination

Teacher	Dr. Falkenberg; Dr. Perez Arredondo; Prof. Borgemeister, NN
Module coordinator	Dr. Perez Arredondo & Dr. Falkenberg
Institute/Department	Center for Development Research (ZEF), University of Bonn

Further information

(Reading lists, information links etc.)

- UN (2015) *Transforming our World: The 2030 Agenda for Sustainable Development*. Geneva, United Nations. Available from: https://sdgs.un.org/publications/transforming-our-world-2030-agenda-sustainable-development-17981 [Accessed 23rd August 2023].
- Geoghegan, T., D´Errico, S., Garcia Acuña, M., El-Saddik, K., Lucks, D., Ocampo, A. & Piergallini, I. (2019) *Evaluating sustainable development: how the 2030 Agenda can help*. IIED, London. Available from: ISBN: 9781784317034.
- Sachs, J., Lafortune, G., Kroll, C., Fuller, G. & Woelm, F. (2022) *Sustainable Development Report 2022*. Cambridge, Cambridge University Press. Available from: https://doi.org/10.1017/9781009210058.
- ICSU, ISSC (2015) *Review of the Sustainable Development Goals:The Science Perspective*. Paris, International Council for Science (ICSU). Available from: http://www.icsu.org/publications/reports-and-reviews/review-of-targets-for-the-sustainable-development-goals-the-science-perspective-2015/SDG-Report.pdf [Accessed 23rd August 2023].
- Romanello, M., Di Napoli, C., Drummond, P., et al. (2022) The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels. *The Lancet*. 400(10363):1619-1654. Available from: https://doi.org/10.1016/S0140-6736(22)01540-9.
- Mortimer, F. & Pencheon, D. (2022) Do no harm: addressing the environmental impact of health care. *Nat Rev Dis Primers* 8, 38. Available from: https://doi.org/10.1038/s41572-022-00372-8.
- Griggs, D. J., Nilsson, M., Stevance, A. & McCollum, D. (eds.) (2017) *A guide to SDG interactions: From science to implementation*. Paris, International Council for Science (ICSU). Available from: https://hdl.handle.net/10568/80993 [Accessed 23rd August 2023].
- Lenzen, M., Malik, A., Li, M., Fry, J., Weisz, H., Pichler, P., et al. (2020) The environmental footprint of health care: a global assessment. *The Lancet Planetary Health*. 4(7), e271-e279. Available from: https://doi.org/10.1016/S2542-5196(20)30121-2.
- Karliner, J., Slotterback, S., Boyd, R., Ashby, B. & Steele, K. (2019) *Health care's climate footprint: how the health sector contributes to the global climate crisis and opportunities for action.* Health Care Without Harm Climate-smart health care series. Available from: https://noharm-

	global.org/sites/default/files/documents-files/5961/HealthCaresClimateFootprint_092319.pdf. [Accessed 23rd August 2023]. • WHO (2020) *Guidance for climate resilient and environmentally sustainable health care facilities*. Geneva, WHO. Available from: https://www.who.int/publications/i/item/9789240012226. [Accessed 23rd August 2023].