

<b>Course title: Contemporary Public Health Issues and Emerging Approaches</b>				
<b>Course code:</b> MPD 144	<b>No. of credits:</b> 3	<b>L-T-P:</b> 38-04-06	<b>Learning hours:</b> 45	
<b>Pre-requisite course code and title (if any):</b>				
<b>Department:</b> Department of Policy & Management Studies				
<b>Course coordinator(s):</b> Dr Chandan Kumar		<b>Course instructor(s):</b> Dr Chandan Kumar		
<b>Contact details:</b> <a href="mailto:chandan.kumar@terisas.ac.in">chandan.kumar@terisas.ac.in</a>				
<b>Course type:</b> Compulsory Core		<b>Course offered in:</b> 3 <sup>rd</sup> Semester		
<b>Course description</b>				
<p>This course is designed to familiarize the students with the concurrent and critical public health issues and emerging approaches being conceptualized, adopted, and implemented by development organizations, especially public health institutions, in recent times. The course is divided into four broad modules; first, relating to the fundamentals of the One Health approach; second, relating to the public health surveillance system; third includes the lifestyle diseases, their risk factors, and sustainable solutions; and fourth focuses on the processes, challenges, and efforts for ensuring universal health coverage. The course aims to cover the recent discourses in public health encapsulating the widespread recent threats of zoonotic communicable diseases and chronic lifestyle diseases along with the approaches and efforts to address them through monitoring and facilitating healthcare services, with a focus on the national, regional, and global contexts.</p>				
<b>Learning objectives:</b>				
<ul style="list-style-type: none"> <li>• To orient students with the emerging integrated approach for addressing population health issues, i.e., One Health approach, its utility, viability, and implementation challenges.</li> <li>• To explore and understand the emerging approaches and technologies to undertake public health surveillance required for informed decision-making to ensure preparedness, prevention, and control of potential outbreaks.</li> <li>• To enable students to assess the global scenario and risks of lifestyle diseases and explore sustainable solutions for addressing chronic lifestyle diseases.</li> <li>• To provide an overview of the context of universal health coverage (UHC), current challenges in healthcare coverage in low- and middle-income countries, e.g., India, and potential pathways to realize UHC.</li> </ul>				
<b>Course content</b>				
<b>Module</b>	<b>Topic</b>	<b>L</b>	<b>T</b>	<b>P</b>
1.	<p><b>Fundamentals of One Health Approach</b></p> <p>It has become increasingly clear that the majority of novel, emergent zoonotic infectious diseases originate in animals, especially wildlife, and that the principal drivers of their emergence are associated with human activities, including changes in ecosystems and land use, intensification of agriculture, urbanization, and international travel and trade. Thus, there is a need for an integrated, unifying approach, e.g., One Health, that aims to sustainably balance and optimize the health of people, animals and ecosystems by undertaking a risk assessment and developing plans for response and control. Antimicrobial resistance is a serious threat to human and animal health in recent times. This module will cover the distinctive discourses around the One Health approach.</p> <p>a) Introduction to the Concept of One Health Approach  b) Drivers &amp; Mechanisms of Disease Emergence at the Animal-Human Interface  c) Antimicrobial Resistance: Impact &amp; International Challenges  d) Real-world use of the One Health approach</p>	10		

	e) Challenges and Future Perspectives for the Application of One Health			
2.	<p><b>Public Health Surveillance</b></p> <p>Public health surveillance is a basic tool of the field epidemiologist, providing the scientific and factual database essential to informed decision-making and to the conduct of public health prevention and control programs. Wastewater-based surveillance has enabled early identification of local outbreaks and informed targeting for rapid clinical testing, to reduce the disease burden and prevent further infections. Recently, social media has become an increasingly relevant tool for public health surveillance, as a real-time census, with organizations using social media to detect, monitor and predict epidemic trends to facilitate preparedness and rapid response. Major points of discussion under this module include:</p> <ul style="list-style-type: none"> <li>a) Introduction to Public Health Surveillance: types, attributes, design, data management and other important considerations</li> <li>b) Wastewater Surveillance and other Environmental Health Surveillance</li> <li>c) Social Media: an emerging surveillance tool for outbreak monitoring &amp; healthcare</li> <li>d) Public Health Surveillance in India: Progress, Threats, Challenges and Opportunities</li> </ul>	8	2	
3.	<p><b>Lifestyle Diseases: Risk Factors &amp; Sustainable Solutions</b></p> <p>Lifestyle diseases characterize those diseases whose occurrence is primarily based on the daily habits of people and are a result of an inappropriate relationship of people with their environment. They share similar risk factors such as prolonged exposure to three modifiable lifestyle behaviours — smoking, unhealthy diet, and physical inactivity — and result in the development of chronic diseases, specifically heart disease, stroke, diabetes, obesity, metabolic syndrome, chronic obstructive pulmonary disease, and some types of cancer. Today, these lifestyle diseases are a major public health problem worldwide. This module will discuss the scenario of such diseases along with their risk factors and evidence-based sustainable solutions.</p> <ul style="list-style-type: none"> <li>a) Major lifestyle diseases in India and the world</li> <li>b) Tobacco &amp; Alcohol Use: epidemiology and regulatory policy</li> <li>c) Plant-based Diet: panacea for lifestyle diseases?</li> <li>d) Therapeutic role of <i>Yoga</i> in addressing chronic diseases</li> <li>e) Lifestyle as Medicine: emerging role of digital technology</li> </ul>	10	2	6

4.	<p><b>Ensuring Universal Health Coverage</b></p> <p>Universal health coverage (UHC) is an emerging priority of health systems worldwide and the overarching target for all other targets under Sustainable Development Goal (SDG) 3. Inequalities continue to be a fundamental challenge for UHC. Even where there is national progress on health service coverage, the aggregate data mask inequalities within countries. This module aims to cover the major discourses in order to realize UHC and notable initiatives taken globally and in the Indian context.</p> <ol style="list-style-type: none"> <li>Universal Health Coverage: need for equitable, quality healthcare, and resilient health systems</li> <li>The Political Economy of Health</li> <li>Global Strategy on Digital Health</li> <li>Challenges to healthcare coverage in India</li> <li>Ayushman Bharat: a comprehensive need-based health care service in India; Health and Wellness Centres (HWCs); Pradhan Mantri Jan Arogya Yojana (PMJAY)</li> </ol>	10		
		38	4	6
<p><b>Evaluation criteria:</b></p> <p>Course grades will be based on the following criteria:</p> <ul style="list-style-type: none"> <li><b>Minor-1:</b> Written Test (20%)</li> <li><b>Minor-2:</b> Submission and Presentation of Assignment (30%)</li> <li><b>Major:</b> Written Test (50%)</li> </ul>				
<p><b>Learning outcomes</b></p> <p>Upon completion of the course, candidates would be:</p> <ol style="list-style-type: none"> <li>able to understand the fundamental concepts, challenges, approaches, processes, and scenarios of emerging public health issues (All evaluations)</li> <li>able to independently conceptualize and develop a piece based on the reviews of empirical evidence generated in the field and scope of relevant public health issues (Minor Test-2)</li> <li>aware of multifaceted approaches, processes, and challenges in ensuring healthcare coverage to population (All evaluations)</li> </ol>				
<p><b>Pedagogical approach</b></p> <p>Classroom lectures, student-led seminars, invited talks from renowned public health practitioners and scientists, and case studies.</p>				
<p><b>Suggested Readings</b></p> <p><b>Module 1:</b></p> <ul style="list-style-type: none"> <li>Atlas, R. M., &amp; Maloy, S. (Eds.) (2014). <i>One health: people, animals, and the environment</i>. Washington, DC: American Society for Microbiology.</li> <li>Kahn, L. H. (2016). <i>One Health and the Politics of Antimicrobial Resistance</i>. Maryland: Johns Hopkins University Press.</li> <li>Mackenzie, J. S., Jeggo, M., Daszak, P., &amp; Richt, J. A. (Eds.) (2013). <i>One Health: The Human–Animal–Environment Interfaces in Emerging Infectious Diseases. Food Safety and Security, and International and National Plans for Implementation of One Health Activities</i>. Heidelberg: Springer-Verlag.</li> <li>Prata, J. C., Ribeiro, A. I., &amp; Rocha-Santos, T. (Eds.) (2022). <i>One Health: Integrated Approach to 21st Century Challenges to Health</i>. London: Elsevier Inc.</li> <li>Rüegg, S. R., Häsler, B., &amp; Zinsstag, J. (Eds.) (2018). <i>Integrated approaches to health: A handbook for the evaluation of One Health</i>. The Netherlands: Wageningen Academic Publishers.</li> </ul>				

- Zinsstag, J., Schelling, E., Waltner-Toews, D., Whittaker, M., & Tanner, M. (Eds.) (2015). *One Health: The Theory and Practice of Integrated Health Approaches*. Oxfordshire: CAB International.

#### Module 2:

- Blanchard, J., Washington, R., Becker, M., Vasanthakumar, N., Madangopal, K., Sarwal, R. et al. (2020) Vision 2035: Public Health Surveillance in India. A White Paper. NITI Aayog.
- Gregg, M. B. (Ed.) (2008). *Field Epidemiology*, Third Edition. New York: Oxford University Press, Inc.
- Gupta, A., & Katarya, R. (2020). Social media-based surveillance systems for healthcare using machine learning: A systematic review. *Journal of Biomedical Informatics*, 108:103500.
- Kilaru, P., Hill, D., Anderson, K., Collins, M. B., Green, H., Kmush, B. L., & Larsen, D. A. (2023). Wastewater Surveillance for Infectious Disease: A Systematic Review. *American Journal of Epidemiology*, 192(2):305-322.
- Thacker, S. B., Stroup, D. F., Parrish, R. G., Anderson, H. A. (1996). Surveillance in environmental public health: issues, systems, and sources. *American Journal of Public Health*, 86(5):633-638.
- Wilson, A. E., Lehmann, C. U., Saleh, S. N., Hanna, J., & Medford, R.J. (2021). Social media: A new tool for outbreak surveillance. *Antimicrobial Stewardship & Healthcare Epidemiology*, 1(1): e50.

#### Module 3:

- Ascione, R. (2022). *The Future of Health: How Digital Technology Will Make Care Accessible, Sustainable, and Human*. Hoboken, New Jersey: John Wiley & Sons, Inc.
- Bijlani, R.L., Vempati, R.P., Yadav, R.K., Ray, R.B., Gupta, V., Sharma, R., Mehta, N., & Mahapatra, S.C. (2005). A brief but comprehensive lifestyle education program based on yoga reduces risk factors for cardiovascular disease and diabetes mellitus. *Journal of Alternative and Complementary Medicine*, 11(2):267-274.
- Boccia, S, Villari, P., Ricciardi, W. (Eds.) (2015). *A Systematic Review of Key Issues in Public Health*. Cham, Switzerland: Springer International Publishing.
- Patel, J.C., Khurana, P., Sharma, Y.K., Kumar, B., & Ragumani, S. (2018). Chronic lifestyle diseases display seasonal sensitive comorbid trend in human population evidence from Google Trends. *PLoS One*, 13(12):e0207359.
- Pickworth, W. B. (Ed.) (2020). *Smokeless Tobacco Products: Characteristics, Usage, Health Effects, and Regulatory Implications*. Amsterdam, Netherlands: Elsevier Inc.
- Raveendran, A.V., Deshpandae, A., & Joshi, S.R. (2018). Therapeutic Role of Yoga in Type 2 Diabetes. *Endocrinology and Metabolism* (Seoul), 33(3):307-317.
- Safaei, M., Sundararajan, E. A., Driss, M., Boulila, W., Shapi'i, A. (2021). A systematic literature review on obesity: Understanding the causes & consequences of obesity and reviewing various machine learning approaches used to predict obesity. *Computers in Biology and Medicine*, 136:104754.
- Thulasi, A., Kumar, V., Jagannathan, A., Angadi, P., Umamaheswar, K., & Raghuram, N. (2022). Development and Validation of Yoga Program for Patients with Type 2 Diabetes Mellitus (T2DM). *Journal of Religion and Health*, 61(3):1951-1965.
- Wörle, L., & Pfeiff, E. (2010). *Yoga as Therapeutic Exercise: A Practical Guide for Manual Therapists*. Edinburgh: Elsevier Ltd.

#### Module 4:

- International Labour Organization (2020). Towards Universal Health Coverage: Social Health Protection Principles. [https://www.ilo.org/secsoc/information-resources/publications-and-tools/Brochures/WCMS\\_740724/lang--en/index.htm](https://www.ilo.org/secsoc/information-resources/publications-and-tools/Brochures/WCMS_740724/lang--en/index.htm)
- Kasthuri, A. (2018). Challenges to Healthcare in India - The Five A's. *Indian Journal of Community Medicine*, 43(3):141-143.
- MacLean, S. J., Brown, S. A., Fourie, P. (Eds.) (2009). *Health for Some: The Political Economy of Global Health Governance*. Hampshire, UK: Palgrave Macmillan.
- Patel, V., Bhadada, S., Mazumdar-Shaw, K., Mukherji, A., Khanna, T., & Kang, G. (2022). A historic opportunity for universal health coverage in India. *Lancet*, 400(10351):475-477.
- Selvaraj, S., Karan, K.A., Srivastava, S., Bhan, N., & Mukhopadhyay, I. (2022). *India Health System Review*. New Delhi: World Health Organization, Regional Office for South-East Asia.
- Shroff, Z.C., Marten, R., Ghaffar, A., Sheikh, K., Bekedam, H., Jhalani, M., & Swaminathan, S. (2020). On the path to Universal Health Coverage: aligning ongoing health systems reforms in India. *BMJ Global Health*, 5(9):e003801.
- Walshe, K., & Smith, J. (Eds.) (2006). *Healthcare Management*. Berkshire: Open University Press.
- Wilensky, S. E., & Teitelbaum, J. B. (2020). *Essentials of health policy and law, Fourth edition*. Burlington, Massachusetts: Jones & Bartlett Learning, LLC.
- Yanful, B., Kirubarajan, A., Bhatia, D., Mishra, S., Allin, S., Di Ruggiero, E. (2023). Quality of care in the context of universal health coverage: a scoping review. *Health Research Policy and Systems*, 21(1):21.

**Additional information:** Up to FIVE candidates will be accommodated from other courses/disciplines after discussion with the course coordinator

#### **Student responsibilities**

Attendance: At least 75% attendance will be necessary to be able to appear for the final exam.

#### **Course reviewers**

1. Dr. Amanda Rodrigues Amorim Adegboye, Associate Director of Research and Engagement, Centre for Agroecology, Water and Resilience (CAWR) & Centre for Healthcare Research (CHR), Coventry University, Coventry, England.
2. Dr. H. K. Chaturvedi, Scientist G & Director (i/c), National Institute of Medical Statistics, Indian Council of Medical Research, Department of Health Research, Ministry of Health & Family Welfare, Government of India.

This Course outline was prepared by Dr Chandan Kumar and approved in the 55th Academic Council Meeting on 10th August 2023 at TERI School of Advanced Studies, New Delhi.