

ANDEMI^A

Online Course Resource Manual from A to Z



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UNIVERSITEIT VAN PRETORIA
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TABLE OF CONTENT

BACKGROUND.....	2
ACADEMIC WRITING AND PUBLISHING	4
BIostatISTICS AND STATISTICAL ANALYSIS 1.....	5
COMMUNICABLE DISEASES.....	7
ENGLISH.....	9
EPIDEMIOLOGY.....	11
ETHICS	13
GLOBAL HEALTH GENERAL.....	15
GOOD CLINICAL PRACTICE	17
HEALTH ECONOMICS	18
MOLECULAR BIOLOGY.....	19
OUTBREAK INVESTIGATION.....	20
PROJECT MANAGEMENT AND OPERATIONAL SKILLS.....	22
QUALITATIVE METHODS	23
RESEARCH DESIGNS	24
RESEARCH QUESTION	25
REVIEWING THE LITERATURE	26
OTHER COURSES.....	28

BACKGROUND

The idea to the ANDEMIA online course manual is based on the challenge that resources for sending ANDEMIA students to a variety of face to face courses is limited not only due to financial but also time constraints. Online course provide a good basis for the students, Master, PhD and Post Docs to provide them with an overview about certain topics and help them to identify their own gaps and needs. They can create more interest for a specific field and build demand for more advanced knowledge on specific topics.

The courses and resources in this manual are meant to reflect a variety of online courses selected from different universities and organisations on topics perceived to be useful for ANDEMIA students. Albeit not complete, we believe that the selection of courses in this manual covers quite comprehensively a wide range of topics. Made for students by students, we have added colour codes to reflect the perceived quality and relevance of the course (Table 1). The green coded courses are very interactive with most containing graded and peer review assignments. The light green and yellow coded courses should be used for revision since they may contain similar information as the green coded courses or are just slides for quick revision. There may be overlaps in some courses but similar course on same topic were selected to increase the diversity of teaching and to let students decide which course suits their method of learning.

Table 1: Course grading

	Very Good
	Good
	Satisfactory
	Fees

This manual is an ongoing process. If you, as a reader and user, discover other courses that should be considered useful for this manual and for the learning experience of other students, please contact us. During the process of putting together these courses, we also found a rich online resource tool, the global health education toolbox: <https://www.medbox.org/global-health-education/toolboxes/listing/> where you will also find very interesting course material on various general and more specific global health topics.

Remain to wish all students using this manual a good learning experience and much fun with the selected courses. And remember: *“Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid.”* (Albert Einstein)

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ACADEMIC WRITING AND PUBLISHING

	Course name	Provider	Course Language	Link to course	Course description
	Academic writing made easy	Technical University of Munich	English	https://www.edx.org/course/academic-writing-made-easy	6 weeks course to understand the principles of academic writing; to identify the various forms and the expectations of each one. Learn how to structure ideas cohesively, write reader-friendly sentences; use appropriate tone to gain credibility and to avoid plagiarism.
	Advanced writing in English	UCI Division on education	English	https://www.coursera.org/learn/advanced-writing	3 hours per week interactive peer-reviewed course which covers important topics such as creative essay writing and how to avoid plagiarism. Learners will also learn of concepts of essay synthesis and documentation.
	Writing in the sciences	Stanford School of Medicine	English	https://www.coursera.org/learn/sciwrite	8 weeks interactive course with peer-reviewed assignments training researchers to effectively present their ideas through writing. It involves 3-5 hours of course work weekly. It covers topics like parallelism, punctuations in writing and how to manage paragraphs.
	How to write a PhD thesis	Université Nouvelle-Galles du Sud	French	http://newt.phys.unsw.edu.au/~jw/these.html	
	Discovering science: science writing	University of Leeds	English	https://www.futurelearn.com/courses/discovering-science-science-writing	This course will help learners to examine factors that need to be considered before writing an academic paper. Narrative structure in writing and interview techniques are covered in this course.
	Preparing manuscripts for journal submission	N/A	English	http://ecp.acponline.org/mayjun99/welch.pdf	Short research article on how to prepare a manuscript for a journal.
	Academic Integrity: values, skills, action	University of Auckland	English	https://www.futurelearn.com/courses/academic-integrity	Maintaining academic integrity plays a vital role in the scientific society. This course covers academic integrity, exploring topics such as academic dishonesty, plagiarism and other fundamental values of academic integrity and its importance.

BIOSTATISTICS AND STATISTICAL ANALYSIS 1

Course name	Provider	Course Language	Link to Course	Course description
Biostatistics	DoaneX	English	https://www.edx.org/course/biostatistics-0	The course helps to identify different types of data, to recognize and design simple experiments and to summarize data numerically and graphically using R. Furthermore it provides information to differentiate between point and interval estimation, to determine and perform correctly statistical tests and to conclude and interpret the results from those tests.
Biostatistics for medical product regulation	Johns Hopkins University	English	http://ocw.jhsph.edu/index.cfm/go/viewCourse/course/BiostatMedicalProductRegulation/coursePage/index/	Useful for the revision on basic terminologies in epidemiology. Includes topics such as basic study design, target population, comparison groups and endpoints.
Understanding clinical research: behind the statistics	University of Cape Town	English (French subtitles)	https://www.coursera.org/learn/clinical-research	6 weeks interactive online course with a graded quiz. Topics covered are; clinical research, statistics and statistical analysis. This course also covers hypothesis testing in statistical research.
Basic biostatistics concepts and tools	University of Alabama	English	http://biostatcourse.fiu.edu/	A full course, including slides and video clips for people who want to recap biostatistics or learn more advanced topics. Suitable for learning the basics of biostatistics and some advanced topics. Self-paced course with downloadable pdf for revision.
Basics in STATA	Harvard University STATA learner	English	https://www.youtube.com/watch?v=Y2qrqCxxV8k https://www.youtube.com/channel/UCkMuaBQIHh2NzZomG2ahdkg https://www.youtube.com/user/StataCorp (https://courses.edx.org/courses/HarvardX/PH207x/2012_Fall/datasets/	This YouTube video teaches the basics in STATA. General overview of STATA and basic commands and how to analyse data. The link in red is the dataset used for the first tutorial.
STATA training	ECDC	English	https://alexhbhatt.gitbooks.io/stata-training/content/	This is a STATA manual with exercises suitable for improving skills and knowledge in STATA.
Guide d'utilisation de STATA	Université Bordeaux	French	Chapitre 1 : https://www.researchgate.net/publication/315066249_Chapitre_1_-_guide_utilisation_de_STATA Chapitre 2 : https://www.researchgate.net/publication/31772	These are research articles on how to utilize STATA. Participants can read articles from time to time as they work with STATA.

				0539 Guide d'utilisation de Stata - Chapitre 2 Chapitre 3 : https://www.researchgate.net/publication/318380788_Guide_d'utilisation_de_Stata_-_Chapitre_3	
	Basic graphs in STATA	Harvard University	English	https://www.bing.com/videos/search?q=graph+in+stata&view=detail&mid=79114A995754F192661A79114A995754F192661A&FORM=VIRE	This series of videos help learners to know principles behind graphs in epidemiology using STATA.
	Introduction to R for data science	Data Camp Microsoft	English	https://www.edx.org/course/introduction-to-r-for-data-science-2	This is an introductory R course. It explores the fundamentals and basic language. Teaches learners on how to perform data analysis with R .It is useful to learn R structures and you can learn to create your own visualizations using R.
	Data science: R basics	Harvard University	English	https://www.edx.org/course/r-basics-2	Interactive course with graded assignment on Basic R syntax and the concepts of R programming such as data types, vectors arithmetic and indexing. Learn how to use R to do personal programming and statistical analysis.
	Introduction à R avec exercices	Data camp	French	https://campus.datacamp.com/courses/introduction-a-r	Series of R exercises from Data camp to help learners improve their skills with R. Very interactive exercise.
	Learning R for epidemiologists	LSHTM	English	http://rpubs.com/michaelmarks/R-Clin-Epi	Learn how to use R studio and install packages necessary for data analysis.
	Aide-mémoire de l'interface R studio	N/A	French	https://thinkr.fr/aide-memoire-de-linterface-rstudio-en-francais/	

COMMUNICABLE DISEASES

Course name	Provider	Course Language	Link to course	Course description
Control of communicable diseases manual (Dictionary for each infectious disease)	GLOBE	French	http://www.globe-network.org/en/control-of-communicable-diseases-manual/factsheets	This web page is created to share knowledge on infectious diseases among health care professionals. Areas covered are basic epidemiological terminologies, vaccines and disease prevention methodologies and laboratory science.
Diarrheal disease	Global Health Learning Centre	French English	https://www.globalhealthlearning.org/course/diarrheal-disease	This course explores the epidemiology and magnitude of diarrheal diseases among children under the age of five in low- and middle-income countries.
Vaccinology	Institut Pasteur	English (French subtitles)	https://www.fun-mooc.fr/courses/pasteur/96002S02/session02/about	This course covers the history of vaccine development and offers a comprehensive overview of vaccinology. Learn about the basic principles, application and challenges of epidemiology.
Ebola: vaincre ensemble	UNIGE Genève	French	https://www.coursera.org/learn/ebola-vaincre-ensemble	The epidemiology, symptoms and management of Ebola is explored in this 17 hours course. Participants can spend approximately 2 hours a week to fully understand the impact of Ebola.
Stories of infection (overview of infectious diseases)	Stanford	English	https://www.coursera.org/learn/stories-of-infection	14 hours course that introduces the basic terminologies and principles in bacterial and viral infections. The course establishes the pathogenesis of some diseases caused by these pathogens and also about immunological reactions.
Malaria	Global Health Learning Centre	French English	https://www.globalhealthlearning.org/course/malaria https://www.globalhealthlearning.org/course/malaria-pregnancy	This course helps participants to understand the epidemiology, lifecycle, and clinical manifestations of malaria. It determines and explores the approach to malaria diagnosis and its management. Participants can also learn about the preventive strategies of malaria in pregnancy.
HIV science	Institut Pasteur	French	https://www.fun-mooc.fr/courses/course-v1:pasteur+96011+self-paced/about	
Fighting HIV with antiretroviral therapy: Implementing the Treat-all approach	Columbia University	English	https://www.edx.org/course/fighting-hiv-with-antiretroviral-therapy-implementing-the-treat-all-approach	Topics covered by this course are HIV testing services, treatment and prevention. Monitoring, support system and the treatment are also covered in this course. Also information on co-infections of HIV and their treatment.

Tropical parasitology: protozoans, worms, vectors and human diseases	Duke University	English	https://www.coursera.org/learn/parasitology	This course provides learners with an understanding of important human parasitic diseases, including their life cycles, vectors of transmission, distribution and epidemiology, pathophysiology and clinical manifestations, treatment, prevention and control.
Bacteria and chronic infections	University of Copenhagen	English	https://www.coursera.org/learn/bacterial-infections	12 hours course on antimicrobial Infection control, microbiology and bacteriology. It looks at the bacterial infection which is common in chronic infections. The course contains graded assignments.
Antimicrobial resistance - theory and methods	Technical University of Denmark	English	https://www.coursera.org/learn/antimicrobial-resistance	5 weeks Interactive course with graded quiz which focuses on antimicrobial action and how antimicrobial resistance occurs. It explores briefly antimicrobial genome as well as microbiology.
Antimicrobial stewardship: managing antibiotic resistance	University of Dundee	English	https://www.futurelearn.com/courses/antimicrobial-stewardship	This 6 weeks interactive course introduces learners to the fundamentals of antimicrobial resistance and its global impact. Antimicrobial stewardship will be discussed and a forum discussion will enable participants to learn by sharing ideas with health care providers across the globe. The aim of the course is to help shaping the view of clinicians in regards to antibiotic prescription.

ENGLISH

Course name	Provider	Course Language	Link to course	Course description
Lower-intermediate	BBC	English	http://www.bbc.co.uk/learningenglish/english/course/lower-intermediate	This course aims to introduce learners to the basics of English language. It covers basic communication skills and provides several activities that make learning English easy. Some topics covered are introductory conversations, question forms and preparing interviews. There are quizzes available after the course.
Intermediate	BBC	English	http://www.bbc.co.uk/learningenglish/english/course/intermediate	To learn English in a fun way, this course combines fun activities to teach topics such as punctuations, tenses and parts of speech. You will also learn how to make good arguments. The exercises in this course will help the learner to gain more confidence in English.
Upper intermediate	BBC	English	http://www.bbc.co.uk/learningenglish/english/course/upper-intermediate	This upper intermediate course introduces learners to subject areas such as clauses, good pronunciation and idiomatic expressions. In this lesson, learners will listen to news articles and answer questions that pertain to the topics covered.
Advanced	BBC	English	http://www.bbc.co.uk/learningenglish/english/hygiene/towardsadvanced-syllabus	The advanced course gives a complete overview and helps one to revise and consolidate their understanding of English language. The course aims to improve the English proficiency of the learner to be able to socialise very easily. This course helps you to master your English.
Intermediate guide to writing in English for University study	University Reading	English	https://www.futurelearn.com/courses/english-for-study-intermediate	The goal of this course is to expand and improve the learner's writing skills. It introduces the different aspects of academic writing such as writing plan, structure of essays, developing paragraphs, avoiding plagiarism, citation and proof reading.
Writing better emails in English	British Council	English	https://www.futurelearn.com/courses/better-emails	This is a short course that will help learners improve their skills through planning, editing and organizing emails.
Academic English overview	LSHTM	English	http://studyskills.lshtm.ac.uk/AcademicEnglish/academicenglish/AcademicEnglish_q&a/toc.html	This web page provides a series of self-assessment exercises that will help the learner improve their understanding and knowledge in academic English. Learners get feedback from the exercises they do and to ensure they and basic concepts are explained through the different activities made available.

	Academic English	UeFAP	English	http://www.uefap.com/	This is a webpage with different topics in English. This page is useful for quick revision. It has simple definitions for terminologies in English with useful examples.
	Duolingo phone app (free)	N/A	English	https://www.duolingo.com/	

EPIDEMIOLOGY

Course name	Provider	Language	Link to course	Course description
Epidemiology in public health practice	Johns Hopkins university	English	https://www.coursera.org/learn/epidemiology-public-health	Four (9 hours) weeks of interactive learning sessions with graded assignment and discussion forum (2 hours / week). Topics covered are; role of epidemiology in public health, problem solving methodology in epidemiology, routine and public health information systems, measures of disease burden (DALYS etc.) and bias.
Epidemiology: the basic science of public health	University of North Carolina	English	https://www.coursera.org/learn/epidemiology	13 hours of interactive learning sessions with graded assignment and discussion forum. This module introduces history and the field of epidemiology, study designs, measures of disease frequency, measures of association and confidence intervals.
Basic epidemiological concepts - 2019	Pan American Health Organisation (PAHO)	English	https://cursos.campusvirtualsp.org/enrol/index.php?id=233	Course involves learning about fundamental principles in epidemiology, incl. causation and surveillance, It also addresses ethical issues and helps the learner to be able to draw personal conclusions that could be relevant. You can learn at your own pace.
Clinical data management	Vanderbilt University	English (French subtitles)	https://www.coursera.org/learn/clinical-data-management	6 weeks (2-4 hours/week) interactive course with graded assignment and discussion forum to help student to learn about best practices for data management. It covers study design, data collection, data management as well as clinical data management. Needs 25 hours to completion.
Epidemiology for public health	Imperial College London	English	https://www.coursera.org/specializations/public-health-epidemiology?	1 month online interactive course with graded assignments covering a broad range of topics in epidemiology. Mains topics covered are measures of diseases burden, study designs in epidemiology and bias.
Epidémiologie	Gabriel Network	French	https://www.gabriel-network.org/elearning/introduction-a-lepidemiologie/ https://www.gabriel-network.org/elearning/differents-types-detudes-epidemiologiques/	Very useful power point presentation for revision of the basic concepts of epidemiology. The course is self-paced and can be accessed all the time.
Implementation research toolkit	WHO	English	http://adphealth.org/irtoolkit/	This course trains learners on different aspects of public health research. It covers areas such as formulation of research question, writing for funding, setting up a study

					design and project planning.
	Introduction à la recherche clinique	Global Health Network	French	https://globalhealthtrainingcentre.tghn.org/elearning/education/elearning_courses/introduction_a_la_recherche_clinique/115/	This is a capacity building programme focussed on methodology of clinical research. After going through this training, the learner will be equipped with the ability to design and set up a clinical research.
	Introduction to data management for clinical research studies	Global Health Network	English	https://globalhealthtrainingcentre.tghn.org/introduction-data-management-clinical-research-studies/	This course is a training programme which covers data management with details on how to analyse and store data. Learners will also be introduced to process involved in clinical research. Certificates are issued after completion of 80% of work.
	Antimicrobial resistance	Global Health Learning Centre	French/English	https://www.globalhealthlearning.org/course/antimicrobial-resistance-part-1-0 https://www.globalhealthlearning.org/course/antimicrobial-resistance-part-2	This course outlines and explores the public health importance of AMR. Topics covered are definition of AMR, major drivers of AMR and its impact on individuals and health systems and the society. Learners will be introduced to several interventions for addressing the multiple factors contributing to AMR.
	Concepts et méthodes en épidémiologie	CNAM	French	https://www.fun-mooc.fr/courses/course-v1:CNAM+01001+session06/about	The course involves learning about the fundamental principles and basic concepts of epidemiology. Interactive course with graded assignment lasting for up to 6 weeks.
	Quantitative methods	University of Amsterdam	English	https://www.coursera.org/learn/quantitative-methods	89 weeks (4 hours/week) interactive course with graded assignments. It covers the principles of quantitative methods in scientific research.

ETHICS

Course name	Provider	Course Language	Link to course	Course description
Training and resources in research ethics evaluation	Institute of Health Law of the University of Neuchâtel (Switzerland)	French English	https://elearning.tree.org/	This course is a training course with three modules on ethics. It covers the introductory overview of research ethics and how to evaluate research ethics. Informed consent in research is also covered in a separate module as well as good clinical practice and ethical issue in HIV.
Handbook for good clinical research practice	WHO	English	http://apps.who.int/medicinedocs/documents/s14084e/s14084e.pdf	Handbook
Research ethics online training	Global Health Network	English	https://globalhealthtrainingcentre.tghn.org/elearning/research-ethics/	This web page allows free access to various capacity building and personal development courses in global health. Self-paced courses on different global health topics and training programmes.
Medical ethics course	World Medical Association	English	https://www.wma.net/what-we-do/education/medical-ethics-course/	This is a comprehensive course with a certificate that delves into the full description of medical ethics and its relevance for medical practice.
Ethics of human subject research	Johns Hopkins University	English	http://ocw.jhsph.edu/index.cfm/go/viewCourse/course/EthicsHumanSubjectResearch/coursePage/index	A complete introductory course on the ethical theory and principles of human subject research. The course is set up as lecture slides but very easy to read and understand. There are different case studies to read in order to improve your knowledge.
Bioethics	MIT	English	https://ocw.mit.edu/courses/linguistics-and-philosophy/24-06j-bioethics-spring-2009/	This course contains downloadable pdf files which introduce learners to the ethical and moral problems in medicine. The course also explores the thinking process around ethical and moral medical issues and teaches how to approach and resolve such problems.
Narrative ethics : literary text and moral issues in medicine	MIT	English	https://ocw.mit.edu/courses/health-sciences-and-technology/hst-935-narrative-ethics-literary-texts-and-moral-issues-in-medicine-january-iap-2007/index.htm	Fun way to learn ethics through literature. This course explores various ways to resolve moral issues in medicine. The aim is to equip learners with the ability of effective critical thinking and reflective reading skills. NB: Stories use fictional examples from known writers.
Biomedical engineering seminar series: topics in	MIT	English	https://ocw.mit.edu/courses/health-sciences-and-technology/hst-590-biomedical-engineering-seminar-series-topics-in-medical-ethics-and-	This course is provided to learners as seminar courses with audio, video and downloadable pdf. The course teaches how to recognize, analyze and resolve ethical issues healthcare

	medical ethics and responsible conduct in research			responsible-conduct-in-research-fall-2005-spring-2006/index.htm	professionals and biomedical researchers face in the highly regulated present day medical society.
	Medical ethics manual	World Medical Association	English/ French	https://www.wma.net/what-we-do/education/medical-ethics-manual/	Handbook
	Declaration of Tapei	World Medical Association	English	https://www.wma.net/policies-post/wma-declaration-of-taipei-on-ethical-considerations-regarding-health-databases-and-biobanks/	Web page of ethical issues with handling patient data/ data management.
	Helsinki Declaration	World Medical Association	English	https://jamanetwork.com/journals/jama/fullarticle/1760318	PDF

GLOBAL HEALTH GENERAL

Course name	Provider	Course Language	Link to course	Course description
Transforming our world: achieving the SDGs	SDG ACADEMY	English	https://www.edx.org/course/transforming-our-world?utm_medium=partner-marketing&utm_source=webpage&utm_campaign=sdgacademyx&utm_content=enroll_in_transforming_our_world	This course introduces the global agenda and vision of the sustainable development goals. It covers the importance of SDGs and how to achieve them. It also provides a broad overview of the interconnectivity of the different goals.
Sustainable development	SDG ACADEMY	English	https://sdgacademy.org/courses/	This web page contains lectures from leading experts on sustainable development. There are over 20 courses which are either instructor-paced or self-paced. The aim is to help learners appreciate the global discussion on SDGs.
Global Public Health	SDG ACADEMY	English	https://www.edx.org/course/global-public-health	The course introduces participants to public health, trends in public health, infectious diseases, maternal and child health, non-communicable diseases, health systems and environment & health.
Répondre aux défis de santé en Afrique	Université Sorbonne Paris	French	https://www.fun-mooc.fr/courses/course-v1:USPC+37015+session02/about	
Global Health at the human animal-ecosystem interface	UNIGE Genève	English (French subtitles)	https://www.coursera.org/learn/global-health-human-animal-ecosystem	This course focuses mainly on disease management, biodiversity, veterinary and public Health.
An introduction to Global Health	University of Copenhagen	English	https://www.coursera.org/learn/global-health-introduction	Interactive course with graded quiz which focuses on maternal & child health, reproductive health, public health and community health.
Strengthening community health worker programs	Harvard University	English	https://www.edx.org/course/strengthening-community-health-worker-programs-to-deliver-primary-health-care	This course covers core concepts of community health and its importance. It also discusses how to strengthen and improve community health work.
The health effects of climate change	Harvard University	English	https://www.edx.org/course/health-effects-of-climate-change	The main topics covered in this course are climate change's impacts on nutrition, migration and infectious diseases.
Systems thinking In public health	Johns Hopkins University	English	https://www.coursera.org/learn/systems-thinking	The course is an introduction to systems thinking and systems models in public health.

	Leaders in health	Université Sorbonne Paris	French	https://www.fun-mooc.fr/courses/course-v1:USPC+37024+session01/about	
	Social determinants of health: what is your role?	BMJ	English	https://www.futurelearn.com/courses/social-determinants-of-health	3 weeks interactive online video course about the concepts of social determinants of health. It explores the reason for the existence of health inequalities and the covers the role of health professional in the reduction of health inequalities.

GOOD CLINICAL PRACTICE

	Course name	Provider	Course Language	Link to course	Course description
	Good clinical practice	Global Health Network	English	https://globalhealthtrainingcentre.tghn.org/elearning/education/elearning-courses/introduction_a_al_recherche_clinique/115/	The course covers the basic principles of GCP. Topics in this model are framework for research participant safety, maintaining data integrity and validity. Learners will also be introduced to responsibilities of investigator, sponsors and the Ethical review board and how to adopt the GCP in conducting clinical research.
	Good clinical laboratory practice	Global Health Network	English	https://globalhealthtrainingcentre.tghn.org/good-clinical-laboratory-practice-course/	The training programme explores the concept of GCLP and GCLP guidelines. It covers the principles of GCLP and the implementation of these principles in a clinical trial process. The aim of the course is to help learner understand how to interpret and implement the GCLP guidelines.
	Good clinical laboratory practice	WHO	English	https://www.who.int/tdr/publications/documents/gclp-web.pdf	Handbook
	Free GCP Training		English	https://www.pharmalessons.com/free-courses/gcptraining/	Introduction to ICH-GCP: The definition and main purposes of good clinical practice (GCP), historical background of GCP. Key facts about the Declaration of Helsinki, importance of GCP and its 13 core principles
	Good clinical practice	NDAT CTN	English	https://gcp.nidatraining.org/	Online training on good clinical practice with certification after completion.

HEALTH ECONOMICS

Course name	Provider	Course Language	Link to course	Course description
Basics of health economics	World Bank Group	English	https://olc.worldbank.org/content/basics-health-economics-self-paced	This is a self-paced program covering the basics of health economics. This course introduces learners to the basic principles and concepts of health economics.
Healthcare finance, economics and risk	DoaneX	English	https://www.edx.org/course/healthcare-finance-economics-and-risk	Understanding the fundamentals of health financing, health economics and risks is critical to health care promotion. This course provides a foundation to better understand health economics. Evaluation of economic concepts and the health financing concepts are covered in this course.
Healthcare economics	MIT	English	https://ocw.mit.edu/courses/economics/14-01sc-principles-of-microeconomics-fall-2011/unit-7-equity-and-efficiency/healthcare-economics/	Self-paced course covering basic terminologies and principles of health economics. This course also introduces learners to some general principles of economics. Study material are downloadable pdf and videos.
Microeconomics principles	University of Illinois	English	https://www.coursera.org/learn/microeconomics	The course is a 22 hours course with the aim of orienting learners to the fundamental principles of economics. It has graded assignments and a forum for discussion. It covers pricing, economic analyses, supply and demand and other useful theories in economics.
Microeconomics: when markets fail	University of Pennsylvania	English	https://www.coursera.org/learn/microeconomics-part1 https://www.coursera.org/learn/microeconomics-part2	28hours course introducing how to make everyday decisions using economics principles. It covers topics such as concept of scarcity, supply and demand, elasticities, market surplus etc. It also has graded assignments and a forum discussion to help one consolidate the acquired knowledge.

MOLECULAR BIOLOGY

Course name	Provider	Course Language	Link to course	Course description
Molecular Biology - Part 1: DNA replication and repair	MIT	English	https://www.edx.org/course/molecular-biology-part-1-dna-replication-and-repair https://ocw.mit.edu/courses/biology/7-28-molecular-biology-spring-2005/index.htm	This online course aims to help learners about the basics of DNA. The main objective is to compare and contrast the mechanisms of DNA replication in prokaryotes and eukaryotes.
Molecular Biology - Part 2: transcription and transposition	MIT	English	https://www.edx.org/course/molecular-biology-part-2-transcription-and-transposition-0	The main objective is to compare and contrast the mechanisms of DNA replication in prokaryotes and eukaryotes. Continuation of the first course (optional).
Molecular Biology – Part 3: RNA processing and translation	MIT	English	https://www.edx.org/course/molecular-biology-part-3-rna-processing-and-translation	Analyse protein structures to infer functional information design the best experiment to test a hypothesis interpret data (optional).
Introduction to biology - the secret of life	MIT	English	https://www.edx.org/course/introduction-to-biology-the-secret-of-life-3	Explore the secret of life through the basics of biochemistry, genetics, molecular biology, recombinant DNA, genomics and rational medicine.
Epigenetics	Institut Pasteur	French	https://www.fun-mooc.fr/courses/course-v1:pasteur+96013+selfpaced/about	This course covers the fundamental principles about epigenetics, environmental epigenetics and how environmental changes influence heritability.
Classical papers in molecular genetics	University of Geneva	English	https://www.coursera.org/learn/papers-molecular-genetics	27 hours interactive course with graded assignments which covers topics such as DNA synthesis and the history of its discovery.
Advances in stem cell biology	Institut Pasteur	English	https://www.coursera.org/learn/advances-stem-cells	This course introduces learners to general concepts of cell biology, tissue specific stem cells and stem cell application.
Epigenetic control of gene expression	The University of Melbourne	English	https://www.coursera.org/learn/epigenetics	Interactive course with graded quiz which focuses on cancer, molecular biology, cancer epigenetics and DNA methylation.
Bioinformatics methods	University of Toronto	English	https://www.coursera.org/learn/bioinformatics-methods-1 https://www.coursera.org/learn/bioinformatics-methods-2	Interactive course with graded quiz which focuses on genetic analysis, bioinformatics analysis, evolution and comparative genomics.

OUTBREAK INVESTIGATION

Course name	Provider	Course Language	Link to course	Course description
Introduction to outbreak investigation and public health surveillance	University of Washington	English	http://www.nwcphp.org/training/opportunities/online-courses/introduction-to-outbreak-investigation http://www.nwcphp.org/training/opportunities/online-courses/introduction-to-public-health-surveillance	Short courses on how to recognise the indicators of a potential disease outbreak and the steps in conducting an outbreak investigation. This second course introduces learners to public health surveillance, different surveillance systems and legal basis for disease reporting.
Epidemics, pandemics and outbreaks	University of Pittsburgh	English	https://www.coursera.org/learn/epidemic-pandemic-outbreak	7 hours (2-3weeks) interactive course with graded assignments and discussion forum on infectious diseases and medical response. This course introduces learners to global health security measures.
Système de gestion de la qualité au laboratoire: manuel	WHO	French	http://www.who.int/ihr/publications/lqms/fr/	Guidelines for outbreak investigation by WHO.
Out break Investigation	WHO	English	https://www.who.int/hac/techguidance/training/outbreak%20investigation_en.pdf	PDF
In the footsteps of Zika-approaching the unknown	Université de Genève	English (French Subtitles)	https://www.coursera.org/learn/zika	11 hours exploration of the Zika phenomenon. It covers epidemiology, investigation of Zika, treatment and preventive measures.
Epidemiologic investigations related to foodborne outbreaks	The University of Tennessee	English	http://www.vet.utk.edu/cafsp/online/coe5.php http://www.vet.utk.edu/cafsp/online/coe.php http://www.vet.utk.edu/cafsp/online/coe_course2.php	Key components of an epidemiologic investigation into a foodborne outbreak and surveillance systems are covered from initiation of the investigation through implementation of control measures to mitigate future illnesses.
Laboratory investigations related to foodborne outbreaks	The University of Tennessee	English	http://www.vet.utk.edu/cafsp/online/lirfo.php	Key components of a laboratory investigation into a foodborne outbreak are covered including determining causative agents; submitting valid samples/specimens; and subtyping causative agents in a foodborne illness investigation.
Field epidemiology	PTHC		https://phtc-online.org/learning/?courseId=9	After completing this course, the learner will be able to: define field epidemiology, identify the roles of professionals involved in outbreak investigations, identify the steps of outbreak investigations and utilize some of the basic techniques for data analysis.

Epidemics	The University of Hong Kong	English	https://www.coursera.org/learn/hkuepidemics	This course covers the following four topics: 1. Origins of novel pathogens; 2. Analysis of the spread of infectious diseases; 3. Medical and public health countermeasures to prevent and control epidemics; 4. Panel discussions involving leading public health experts with deep frontline experiences to share their views on risk communication, crisis management, ethics and public trust in the context of infectious disease control.
Epidemiology: Outbreak investigation and response training	Research Gate	English	https://www.researchgate.net/publication/5882529_EPIDEMIOLOGY_Outbreak_Investigation_and_Response_Training	Research publication
Public health surveillance	North Carolina Institute of Public health	English	https://nciph.sph.unc.edu/tws/HEP_PHSUR/certificate.php	The objectives of this course are; defining public health surveillance, identifying uses of public health surveillance, listing sources of public health surveillance data. Participants may get a certificate after completion.
Outbreak response and emerging pathogens	WHO	English/ French	https://openwho.org/?locale=fr	This web page contains interactive online courses by WHO. Participants can find several courses on new and emerging pathogens which are of interest in global health discussions.
Epidemics, pandemics and outbreaks	University of Pittsburgh		https://www.coursera.org/learn/epidemic-pandemic-outbreak	This course explores infectious diseases and medical responses and also looks at public health laws and policies.

PROJECT MANAGEMENT AND OPERATIONAL SKILLS

	Course name	Provider	Course Language	Link to course	Course description
	Fundamentals of project planning and management	University of Virginia	English	https://www.futurelearn.com/courses/fundamentals-of-project-planning-and-management	This course explores what a project is, the cycle in the management of a project and how to assess risks when developing a project.
	International project management	Rochester Institute of Technology (RITx)	English	https://www.edx.org/course/international-project-management	Participants will learn how to manage a project with people having different cultural backgrounds. The course provides a broad range of ideas to deepen the knowledge and skills of project managers in a multicultural setting.
	Introduction to project management	The University of Adelaide	English	https://www.edx.org/course/introduction-project-management-adelaidex-project101x-1	This course introduces the core principles and the basic concepts of communication skills needed to effectively run a project. Participants will be introduced to the complexities in projects and how to resolve such issues.
	Aide à la décision multicritère	Institut Pasteur	French	https://www.fun-mooc.fr/courses/course-v1:grenoblealpes+92008+session02/about	
	Operation research in healthcare	University of Twente	English	https://www.utwente.nl/en/choir/education/PhDstudents/LNMB_ORinHealthcare_coursePhDs/College%20%20(introduction).pdf	PowerPoint presentation
	Time management quiz and strategies	Virginia Tech	English	http://ucc.vt.edu/academic_support/online_study_skills_workshops/time_management_strategies.html	PDF on how to manage and utilise time effectively.

QUALITATIVE METHODS

	Course name	Provider	Course Language	Link to course	Course description
	Qualitative research methods	MIT	English	https://www.edx.org/course/qualitative-research-methods-interview-process	3 weeks short course of 2 hours study time per week. It covers how to prepare an interview protocol, how to conduct an interview and how to access validity of a research protocol.
	NVIVO	La Trobe University	English	https://www.youtube.com/playlist?list=PLzqX1yDARx7cuHK9xIU6eQmegMuUwRbaC https://www.qsrinternational.com/nvivo/nvivo-training	Learn to use NVIVO for your qualitative data analysis. The link contains a series of YouTube videos that help learners to familiarise themselves with the fundamentals of NVIVO.
	Why experience matters: Qualitative research	Griffith University	English	https://www.futurelearn.com/courses/why-experience-matters?utm_campaign=Courses+feed&utm_medium=courses-feed&utm_source=courses-feed&utm_source=RakutenMarketing&utm_medium=Affiliate&utm_campaign=3347507:Class+Central&utm_content=10:1&utm_term=USNetwork&ranMID=44015&ranEAID=SAyYsTvLiGQ&ranSiteID=SAyYsTvLiGQ-GJogyOL1U1z.mCNJ01DjZA	The course introduces the key assumptions in qualitative research, how to formulate a research topic, methods of data collection and also qualitative research approaches. It covers qualitative research data analysis methods and key principles to maintain integrity during data collection and documentation.
	RQDA	RQDA tuto	French English	https://www.youtube.com/playlist?list=PL52377017A7137925 https://www.youtube.com/playlist?list=PL66CB2FF65368715C	This series of videos in both French and English introduce you to the basics of the free qualitative research data analysis software RQDA and how to use the software to analyse interviews and open ended questions.

RESEARCH DESIGNS

	Course name	Provider	Course Language	Link to course	Course description
	Rethinking clinical trials: a living textbook of pragmatic clinical trials	NIH	English	http://www.rethinkingclinicaltrials.org/	This course covers the basic tenets of Clinical trials. It explores the approach to conducting clinical research including ethics, biostatistics and study design data standards and quality.
	Study designs in epidemiology	Imperial college London	English	https://www.coursera.org/specializations/public-health-epidemiology	This 6 hours course introduces learners to the various study design in epidemiology. Topics covered are randomised control trials, case-control studies, cohort studies and cross-sectional studies. Course also has a graded quiz.
	Epidemiology: the basic science of public health	University of North Carolina	English	https://www.coursera.org/learn/epidemiology	13 hours of interactive learning sessions with graded assignment and discussion forum. This module introduces history and the field of epidemiology, study designs, measures of disease frequency, measures of association and confidence intervals.
	Improving Healthcare through clinical research	University of Leeds	English	https://www.futurelearn.com/courses/clinical-research	The course is focused on clinical trials and introduces learners to the fundamentals of clinical trials. Some topics covered are: randomisation, blinding, allocation etc.

RESEARCH QUESTION

	Course name	Provider	Course Language	Link to course	Course description
	Discovering your PhD potential: writing a research proposal	University of Leicester	English	https://www.futurelearn.com/courses/research-question	The course is an interactive course with assignments to help learners develop their own proposal for a PhD research. The course is designed to cover topics such as proposal writing, literature review, developing a research question and research methodologies.
	La Question de Recherche	Global Health Network	French	https://globalhealthtrainingcentre.tghn.org/elearning/education/elearning-courses/la-question-de-recherche/146/	This webpage allows free access to various capacity strengthening courses in global health and there are certificates available after completion of certain courses
	Penser: Question de recherché, et évaluation de la pertinence de la littérature	Gabriel Network	French	https://www.gabriel-network.org/elearning/penser/	Very useful training how to do a literature review for a research project. Self-paced and can be accessed all the time.
	Developing Your Research Project	University of Southampton	English	https://www.futurelearn.com/courses/research-project	The course covers important topics in research such as developing a research proposal, research methods, referencing, plagiarism, and academic integrity. It also covers some aspects of literature reviews and presentation skills.

REVIEWING THE LITERATURE

Course name	Provider	Course Language	Link to course	Course description
Research writing: How to do a literature review	University of Wollongong Australia	English	https://www.futurelearn.com/courses/research-writing	This course of 2 hours study time per week is designed for research students at any level. The course introduces the fundamentals of literature review, how to develop a professional bibliography and annotation. It also help learners to develop and plan critical discussions in reponse to questions based on evidence through quality literature review.
Introduction to systematic review and meta-analysis	Johns Hopkins	English	https://www.coursera.org/learn/systematic-review	An interactive course with 6 weeks of teaching (4-6 hrs/week). Has both graded assignments and peer reviewed discussion forums. Describes steps in conducting a systematic review, approach, PICO framework, data processing as well as methods to critically assess the risk of bias in clinical trials and to interpret the results of meta-analyses.
CERTaIN: Knowledge synthesis: systematic reviews and clinical decision making	University of Texas		https://www.edx.org/course/certain-knowledge-synthesis-systematic-reviews-and-clinical-decision-making	Overview of systematic reviews: finding and managing the evidence from the biomedical literature; intervention reviews methodology; meta-analysis of clinical trials: direct comparisons; Introduction to meta-analysis: indirect comparisons; meta-analysis of non-randomized studies; diagnostic test evaluation, meta-synthesis, clinical practice guidelines, economic evaluation and decision analysis for outcomes research.
HINARI training for searching skills, PubMed, reference management, etc.	WHO	French/English	http://www.who.int/hinari/training/fr/	Useful for learning research skills, referencing and searching for literature.
Reference managers	University Ottawa	English	https://uottawa.libguides.com/citation-management	Learn how to organise and manage citations for a research work using different forms of citation management tools.
Mendeley	Ethiopian Research institute	English	http://www.essp.ifpri.info/files/2011/04/IntroductionMendeley_20130213.pdf	PDF

	Mendeley		English	https://www.mendeley.com/guides/videos	A series of videos that guides learners on how to get started with and to efficiently use Mendeley.
	EndNote	Technical University of Munich	English French	https://www.ub.tum.de/en/info/endnote#E-Tutorials https://www.youtube.com/watch?v=dJWCa88ndX4&feature=youtu.be	This web page gives you an overview of the current features and updates of Endnote. It also contains links that has video tutorials of Endnote. The second website has series of youtube videos to help learners grasp the basic concepts of Endnote
	Endnote	La Trobe University		https://www.youtube.com/playlist?list=PLzqX1yDARx7cu6vOHuqnfqXj5jbutxa3F	This series of videos introduces you to the basics of the Endnote. It teaches how to create a library and to use Endnote to organise literature review.
	Endnote	Clarivate Analytics company	English	http://clarivate.libguides.com/c.php?g=606518&p=6727307	This e-learning platform contains a series of trainings on Endnote. The goal of the exercises is to help participants gain proficiency in Endnote. Main Endnote web page.
	RefWorks	Jacob University	English	http://library.user.jacobs-university.de/refworks-tutorial/	Web page tutorial on how to use Refwork
	RefWorks			https://www.youtube.com/user/ProQuestRefWorks/playlists	20 mins Youtube videos on how to use Refwork.

OTHER COURSES

Course name	Provider	Course Language	Link to course	Course description
Microsoft Word, Excel, Powerpoint	Microsoft	English	https://support.office.com/fr-fr/office-training-center?omkt=fr-001	
Improve your intercultural competence	Purdue University	English	https://www.futurelearn.com/courses/intercultural-competence	The course is about good intercultural communication and understanding of differences in cultures. Learn the basics of intercultural competence, its importance and other skills to improve your professional career.
Introduction to translational research: connecting scientists and medical doctors	Tapei Medical University	English	https://www.futurelearn.com/courses/translational-research	Learn the importance and fundamentals of research translation to improve the situation of the world. The course aims to help researchers have the skill and ability to translate their research finding into the community to help improve lives.
Learning how to learn: powerful mental tools to help you master tough subjects	University of California	English	https://www.coursera.org/learn/learning-how-to-learn	
Communicating complex information: presenting your ideas clearly and effectively	Purdue University	English	https://www.futurelearn.com/courses/communicating-complex-information	This course covers and introduces learners to the different explanation models. It aims to equip learners with the ability to explain their work to all people with ease. Topics such as structural organisation, infographics and designing of charts, as well as barriers to effective communication are covered.
Presentation skills: speechwriting, slides and delivery	National Research Tomsk State University	English	https://www.coursera.org/specializations/presentation-skills	
Poster development			http://ga.lsu.edu/Effective%20Poster%20Design%20for%20Academic%20Conferences.pdf http://undergraduateresearch.as.ua.edu/presenting-your-	

			work/making-posters/ https://weblearn.ox.ac.uk/access/content/group/e05e05d2-f4ce-4a24-a008031832bd1509/LearningRes_Open/Course_Book_Ppt_TIUD_Conference_Posters10.pdf https://guides.nyu.edu/posters	
PubMed	PubMed® Online Training	English	https://news.nlm.gov/pnr/free-online-ce-classes-pubmed-for-librarians-registration-is-open/ https://learn.nlm.nih.gov/documentation/training-packets/T0042010P/	