MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2026-27
Module Code	2611
Module Title	AI in Health: Principles and Applications
Module Organiser(s)	Sanjay Kinra, Poppy Mallinson
Faculty	Epidemiology & Population Health
FHEQ Level	Level 7
Credit Value	**CATS:** 15 **ECTS:** 7.5
Term of Delivery	Term 2
Mode of Delivery	This module will be delivered by predominantly face-to-face teaching modes. Where specific teaching methods (lectures, seminars, discussion groups) are noted in this module specification these will be delivered by predominantly face-to-face sessions. There will be a combination of live and interactive activities (synchronous learning) as well as some self-directed study (asynchronous learning).
Mode of Study	Full-time
Language of Study	English
Pre-Requisites	None
Accreditation by Professional Statutory and Regulatory Body	None
Module Cap (indicative number of students)	80
Target Audience	All health researchers interested in applications of AI to solve healthcare problems.
Module Description	This module will introduce students to key principles and applications of artificial intelligence (AI) in health and healthcare and equip them with knowledge and skills to critically appraise and plan research around AI in health and healthcare. (NB this is not a technical course on building AI models, which will be covered at a conceptual level only).
Duration	5 weeks at 2.5 days per week (with face-to-face contact time of ~2 days per week for the first 4 weeks of the module).

Timetabling slot	Slot D1
Last Revised (e.g. year changes approved)	May 2026

Programme(s) This module is linked to the following programme(s)	**Status**
MSc Health Data Science	Recommended
MSc Public Health	Recommended
MSc Public Health for Global Practice	Recommended
MSc Demography and Health	Recommended

Module Aim and Intended Learning Outcomes

Overall aim of the module
To introduce students to key principles and applications of artificial intelligence (AI) in health and healthcare and equip them with knowledge and skills to critically appraise and plan research around AI in health and healthcare.

Module Intended Learning Outcomes
Upon successful completion of the module, a student will be able to: 1. At a conceptual level, reflect on the fundamentals of how major classes of AI models work (machine learning (ML), deep learning (DL) and large language models (LLMs), contextualising this within their applications to healthcare. 2. Analyse applications of AI in health and healthcare, explaining how different methods (ML, DL, LLMs) are suited to address diverse clinical and public health problems. 3. Critically appraise research around AI in health and healthcare, evaluating study design, data quality, model development, validation and clinical relevance. 4. Develop an evaluation plan for an AI-enabled health tool, assessing performance, generalisability, alignment with clinical needs, bias and fairness across diverse populations. 5. Assess governance, ethical, sustainability, and implementation challenges in AI enabled healthcare, proposing practical strategies for responsible and equitable use.

Indicative Syllabus

Session Content
Week 1 (2 contact days): Overview of AI in health, primers on machine learning and deep learning Week 2 (2 contact days): Primer on large language models (LLMs), bias and alignment of AI models Week 3 (2 contact days): Applications of AI in healthcare: Guest lectures showcasing work from across LSHTM Week 4 (2 contact days): Practical considerations, implementation and emerging themes in AI Week 5: Assessment

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	40	27%
Directed self-study	30	20%
Self-directed learning	30	20%
Assessment, review and revision	50	33%
Total	**150**	**100%**

Student contact time refers to the tutor-mediated time allocated to teaching, provision of guidance and feedback to students. This time includes activities that take place in face-to-face contexts such as lectures, seminars, demonstrations, tutorials, supervised laboratory workshops, practical classes, project supervision as well as where tutors are available for one-to-one discussions and interaction by email.

The division of notional learning hours listed above is indicative and is designed to inform students as to the relative split between interactive and self-directed study.

Teaching and Learning Strategy
The module will consist of a series of lectures and seminars/practicals that will either involve the presentation and discussion of an issue or a practical exercise or a computer-based workshop.

Assessment

Assessment Strategy
Formative Assessment: This will be used to measure students' progress and help to prepare them for the summative assessment, in the form of a group-based task where they use an LLM to assist with critiquing or designing a study and are tasked to reflect upon the LLM's performance in relation to the LLM theory we have learnt. **Summative Assessment:** This will consist of a written report of no more than 1500 words, to be handed in on the final day of the module. Students will be given a summary of a recent paper presenting an AI solution and tasked to prepare a report to a public health manager a) advising them on readiness to adopt this AI-based solution in a given health system context, and b) proposing a study that could be conducted to address one of the readiness challenges identified. The grade for the summative assessment only will go towards the overall award GPA.

Summative Assessment

Assessment Type	**Assessment Length (i.e. Word Count, Length of presentation in minutes)**	**Weighting** (%)	**Intended Module Learning Outcomes Tested**
Written report	Max 1,500 words	100%	1, 2, 3, 4, 5

Resitting assessment
Resits will accord with Chapter 8a of the LSHTM Academic Manual. The resit will be a written report of the same format as the original assessment based on a different paper.

Resources

Indicative reading list

This will be provided to students online prior to the start of the term.

Teaching for Disabilities and Learning Differences

The module-specific site on Moodle gives students access to lecture notes and copies of the slides used during the lecture. Where appropriate, lectures are recorded and made available on Moodle. All materials posted on Moodle, including computer-based sessions, have been made accessible where possible.

LSHTM Moodle is accessible to the widest possible audience, regardless of specific needs or disabilities. More detail can be found in the Moodle Accessibility Statement which can also be found within the footer of the Moodle pages. All students have access to "SensusAccess" software which allows conversion of files into alternative formats.

Student Support Services can arrange learning or assessment adjustments for students where needed. Details and how to request support can be found on the LSHTM Disability Support pages.