



CERTIFICATE OF AI IN MEDICINE

Organized By the Faculty of Medicine, Thammasat University, And
The School of Medicine, The University of Alabama at Birmingham (UAB)

COURSE CONTENTS

AI in Medicine

Basic AI literacy (366 min)

- Applications of AI in daily life
- Ethics and challenges in AI
- History of AI
- The future of AI & you
- Categories of AI
- Introduction to artificial intelligence
- What is machine learning?
- Getting to know simple AI tools

Foundations of AI in healthcare (680 min)

- Clinical applications of AI
- Future of AI in healthcare and Q&A
- Generative AI and large language models
- Evaluating and choosing AI tools
- Agentic AI
- Introduction to AI in healthcare
- Ethical considerations and AI safety in healthcare
- Practical implementation: how AI integrates into a clinical workflow

ROI for AI in medicine (180 min)

- The economics of AI in healthcare
- The nonquantitative ROI of AI in healthcare
- Foundations and value of AI in healthcare
- Business models for AI in healthcare
- Strategic financial planning for AI in healthcare

Responsible AI implementation in healthcare (190 min)

- Leadership, governance, and management change
- Sustainability, evaluation, and impact
- Risk, security, and safety in healthcare AI
- Advanced technologies and human-AI synergy
- Foundations and ethical principles of AI in healthcare

Healthcare Innovation and Digital Transformation

Now to next: the future of healthcare (176 min)

- From now to next – foundations of transformation
- Transformation of roles and structures
- Organizational and financial shifts in healthcare
- Vision for future healthcare
- The “Copernican shift” in healthcare dynamics and value creation

Innovating hospitals and health systems (180 min)

- From vision to purpose
- Organization
- Competence
- Linkages
- Conclusion

AI for healthcare quality and patient safety (362 min)

- Responsible AI in health care: ethical implementation for the quintuple aim
- Introduction to AI in health care and the quintuple aim
- Generative AI: transforming health care through the quintuple aim framework
- AI and population health management
- The future of AI in health care: a call to action
- Leveraging artificial intelligence to advance health care equity and eliminate disparities
- Leveraging artificial intelligence to advance health care equity
- Artificial intelligence as a cost management strategy in modern health care
- AI and improving patient experience

Patient safety

High-reliability program (252 min)

- Introduction to healthcare quality and patient safety
- Organizing for healthcare quality: the HQS 360 approach
- High reliability organizations
- The quality management process
- Performance measurement
- Evaluating performance
- Determining causation
- Improving performance
- Managing patient safety and risk
- Managing the patient and staff experience
- Design for reliability

First, do no harm (130 min)

- Health care’s climate footprint: an inconvenient truth
- Digitalization and environmental sustainability
- Digital health trends and their material footprint
- Environmental impacts in the use phase of digital health technologies
- The end-of-life challenge: managing digital health waste
- Digital health platforms and environmental sustainability

- Toward environmentally sustainable digital health that works for inclusive health care
- Policy options for environmentally sustainable digital development

Advances in AI

Advanced AI in health care (620 min)

- Multimodal AI
- Computer vision for medical professionals
- Types of biomedical data
- Deep learning fundamentals for healthcare
- Understanding AI model behavior

Prompt engineering (1,100 min)

- Ethics and responsible AI use
- Technical and analytical prompting
- Foundations of prompt engineering
- Advanced prompting strategies
- Capstone project and portfolio development
- Prompt optimization and best practices
- Specialized prompting applications
- Core prompting techniques