

# Lecture Plan

<b>Course Title</b>	AI in Healthcare
<b>Name</b>	Jaeyong Lee

<b>Course Overview</b>	<p>This course investigates the transformative role of Artificial Intelligence (AI) in the healthcare domain. Students will explore the fundamental concepts of AI and understand real-world examples of intelligent healthcare applications, gaining insights into how AI can revolutionize the health continuum and create patient-centric experiences. The course will also invoke the ethical implications of AI in healthcare, discussing potential challenges and limitations. By the end of the course, students will be equipped with strategic insights necessary to develop AI solutions within healthcare businesses, positioning them to contribute to the future innovation.</p>
	<ul style="list-style-type: none"><li>- Understand the role of AI in healthcare and AI healthcare applications</li><li>- Analyze the impact of AI across the health continuum from healthy living, prevention, diagnosis, treatment and patient care</li><li>- Understand the approaches for developing patient-centric AI applications and explore potential business opportunities</li><li>- Evaluate the ethical considerations, limitations, and the importance of responsible AI in healthcare environments.</li></ul>
	Lectures (60%) / Workshop and Discussions (40%)

<b>Textbook and Reference Materials</b>	<p>Main article: [1] Topol, E. (2019). Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again. Basic Books.</p> <p>[2] Lowdermilk, T., &amp; Rich, J. (2017). The customer-driven playbook: Converting customer feedback into successful products. O'Reilly Media.</p> <p>Supplementary articles: [3] Wang L. &amp; Alexander C. A. (2020). Big data analytics in medical engineering and healthcare: methods, advances, and challenges. <i>Journal of Medical Engineering &amp; Technology</i>.</p> <p>[4] Griffin P. M. et al. (2016). Healthcare systems engineering. John Wiley &amp; Sons.</p> <p>[5] Amershi S, Weld D, Vorvoreanu M, Fourney A, Nushi B, Collisson P, et al. (2019). Guidelines for Human-AI Interaction. Microsoft Research.</p>
<b>Assessment Method</b>	Attendance (40%) / Class Participation and Discussions (60%)

<b>Detailed Lecture Plan</b>	<b>Session</b>	<b>Lecture topics and contents</b>	<b>Textbook and reading materials</b>
	12/20 (Sat) 08:30 – 12:30 (4hrs)	<p>[1] Healthcare and AI</p> <p>[2] AI Across the Healthcare Continuum</p> <p>(1), (2)</p>	<p>- Topol, E. (2019). Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again. Basic Books.</p> <p>- Lowdermilk, T., &amp; Rich, J. (2017). The customer-driven playbook: Converting customer feedback into successful products. O'Reilly Media.</p>

<b>Assignment</b>	<p>12/20 (Sat) 13:30 – 17:00 (3.5hrs)</p>	<p>[3] Special Lecture: "AI and Digital Healthcare" (Junhwan Kim, M.D., Executive Director of the VC Division, Internal Medicine Specialist, Kakao Healthcare)</p> <p>[4] Designing Patient-Centered Healthcare AI application</p>	<p>- Wang L. &amp; Alexander C. A. (2020). Big data analytics in medical engineering and healthcare: methods, advances, and challenges. <i>Journal of Medical Engineering &amp; Technology</i>.</p> <p>- Griffin P. M. et al. (2016). <i>Healthcare systems engineering</i>. John Wiley &amp; Sons.</p>
	<p>12/26 (Fri) 18:30 – 22:15 (3.75hrs)</p>	<p>[5] Responsible AI (1), (2)</p>	<p>- Amershi S, Weld D, Vorvoreanu M, Fourney A, Nushi B, Collisson P, et al. (2019). <i>Guidelines for Human-AI Interaction</i>. Microsoft Research.</p>
	<p><b>*Note</b></p> <ol style="list-style-type: none"> <li>1. Instead of 15-week lecture for one semester, the lectures should be proceeded as focused-lectures (modules) including weekends. (Strict adherence to 15 hours or more per credit)</li> <li>2. Write within 2 pages</li> <li>3. For multiple applications, the lecture plan should be written for each subject (e.g. two lecture plans need to be submitted when applying for two courses)</li> </ol>		