

2023



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	<p>The immune system is a disease defense system composed of a series of biological structures and processes in an organism. The immune system can detect many pathogens, including viruses and bacteria, and distinguish them from healthy tissues. It participates in the maintenance of the normal functions of almost all tissues and organs of the human body and is closely related to human health. Especially in the environment where epidemic diseases are raging around the world and immune diagnosis and treatment are becoming increasingly important, immunology is advancing by leaps and bounds, immunology and immunological technology play an important role in safeguarding human health.</p> <p>This course will expand and introduce the basic knowledge of immunology and related technologies, including the composition and function of the immune system, immune diseases, immunity and aging, antibody technology, etc., based on the existing knowledge of senior high school students. On this basis, we will further discuss the application of immunological knowledge and technology in the prevention, diagnosis and treatment of diseases, such as the prevention of infectious diseases by vaccines and the immunotherapy of tumors. Finally, the students will deeply understand the important role of this discipline in the maintenance of human health and the characteristics of the interaction and integration of immunological technology and other disciplines, which will also inspire the students to explore the frontiers of immunology.</p>						

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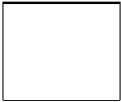
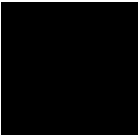
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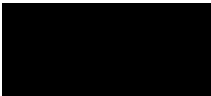
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	<p>In this course, the fundamental principles, key technologies, and related state-of-art progresses and clinical applications in Biophysics will be introduced. The basic concepts, methodologies and techniques in Biophysics and Biomedical Engineering will be emphasized. The key principles, technologies, and progresses related with biology and medicine will also be highlighted. The latest research progresses in biology and medicine Biophysical technologies will be introduced.</p> <p>In this course, the following topics will be covered: basic principles of Biophysics, physics on EM waves, the principles on the interactions between EM wave and biological samples, the biological and molecular physics, typical imaging technologies, and microscopy on molecules. Understandings and research ideas on Biophysics and related methods in biology and medicine are required at the end of this course. The interest on inter-discipline are expected to be developed. The students should finally get basic knowledge on Biophysics and some significant progresses on the practical applications in Biology and Medicine.</p>						

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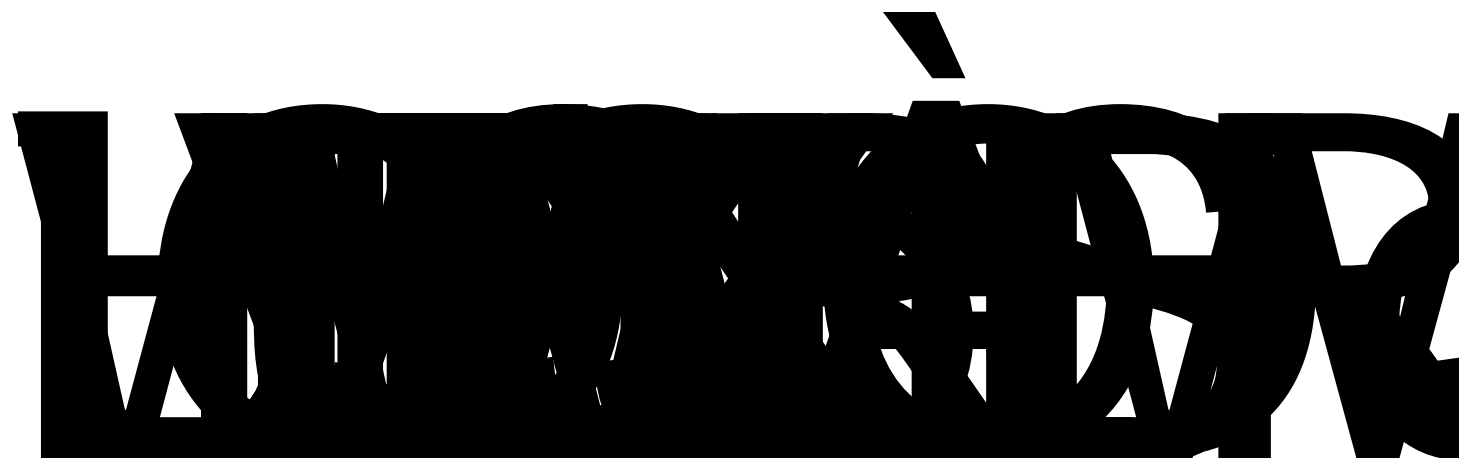
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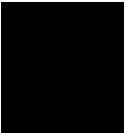
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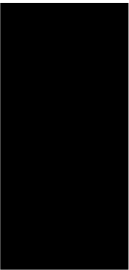




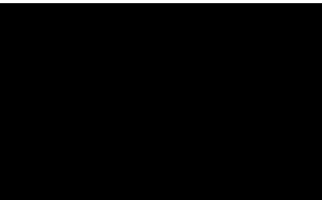
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	<p>The Biomedical Engineering Senior Design course is a required, one and half semester capstone course for undergraduate students. Students work in an individual or in a team to solve real-world, open-ended problems in the field of biomedical engineering. Specifically, it is divided into research topics and industrial topics. Among them, research topics are proposed by academic teachers, and students carry out the design under the guidance of teachers; industrial topics are issued by enterprises in the medical instrument industry. Students are guided by both the academic teacher and industrial instructors jointly in on-going R&D project. The course takes students through all steps of biomedical engineering design, from identifying and formulating a problem, analyzing the problem, prototyping viable solutions, testing, and finally bringing their product to the clinics and/or market.</p>						

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	结合本校办学定位、学生情况、专业人才培养要求，具体描述学习本课程后应该达到的知识、能力、素质、价值水平。 1.能了解人工智能的基本方法，了解人工智能的发展历程，了解人工智能与相关学科、应用结合后的前景；（ A1， A3， B1， B2， B3， B4， C3， D1， D3） 2.能使用人工智能工具，构建针对实际问题的解决方案。（ B2， B3， B4， C2， C3， C5）						

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	<p>Medical diagnosis has become a key link in the process of disease prevention, diagnosis, and treatment. With the rapid development of microfluidic devices, liquid biopsy, and other technologies, medical diagnosis is entering a new era. This course aims to introduce students to the latest research progress and clinical applications of medical diagnosis, including microfluidic devices, liquid biopsy, and other technologies. Through class teaching, innovative practice, case analysis, presentations and discussions, this course enables students to understand the fundamentals of medical diagnostic frontier technology and their application in biomedical fields in a multi-dimensional manner, inspiring students' interest in medical diagnosis and biomedical engineering. It also lays the foundation for the current urgent need for cross-combination research talents.</p>					

