Dept. of Biopharmaceutical Chemistry

The Department of Biopharmaceutical Chemistry is aiming at cultivating creative and practical experts and leaders in accordance with fast-growing bioindustry. We offer a specialized and prestigious education program that covers not only basic science subjects, including advanced biochemistry, protein chemistry, physiology, and immunology but also bioindustry-related subjects such as biopharmaceutical research, biotechnology and biopharmaceutical seminars, and antibody engineering. Our diverse faculty boasts nationally and internationally known scholars in antibody drug and antibody-based biologics development. We invite you to explore our exciting programs at the Department of Biopharmaceutical Chemistry.

❑ **Biopharmaceutical Chemistry Major**

Biopharmaceutical Chemistry Major specializes in a wide variety of highly practical field of study that allows the application of basic biopharmaceutical research for new biodrug development.

☐ **Courses**

❑ **Core Courses**

·Advanced Biochemistry

This subject is designed to understand the structure and regulation of receptors and ion channels and lectures on the molecular regulation mechanisms of the signaling pathways flowing from them. It also provides an opportunity to understand various diseases as biochemical concepts.

❑ **Major Courses**

·Advanced Organic Chemistry

Topics include basic concepts and laws of organic chemistry, reactor theory, stereochemistry, photochemistry, free radicals, and aromaticity.

·Cancer Biology

This subject is designed to understand the causes of cancer, its molecular mechanisms and processes, and study the genes involved in the induction and inhibition of cancer and their functions. In addition, students acquire knowledge about the network and physiological networks of various biochemical signaling pathways.

·Enzymology

This subject is designed to understand general properties of enzyme reactions such as enzyme activity, substrate specificity, and biocatalysis using an enzyme as a biocatalyst in chemical reaction.

·Advanced Analytical Chemistry

This lecture is designed to explain the most important issues in modern analytical chemistry. Topics include the principles, instrumentations, and applications of spectroscopy, electrochemistry, separations, mass spectroscopy and chemical sensing.

·Cellular Signaling

This lecture describes various mechanisms on signal transduction in cells. Especially, students will learn how these mechanisms are interconnected and how the signals were originated from membrane receptors or ion channels.

·Biological and Organic Chemistry

This lecture is designed to understand chemical reactions especially in biological systems.

·Biology and Analytical Chemistry

This lecture focuses on understanding how biological metabolites or the biological organisms themselves could be analyzed using the analytical methodologies.

·Antibody Engineering

Understanding structure and function of antibodies provides answers to the reason why antibody therapeutics is meaningful in biopharmaceutical industry. This lecture provides recent research efforts on enhancing therapeutic potency of antibodies to fulfil unmet medical needs.

·Advanced Immunology

This lecture is designed to study and discuss on the current research trend in cells and biomecules that constitute an immune system and their physiological function, and in the development of new immune materials and vaccine.

·Advanced Protein Chemistry

This subject will provide essential knowledge for understanding various protein engineering techniques to create novel and improved protein functions, recent trends of protein engineering, and applications of engineered proteins for scientific, medical and industrial purposes.

·Advanced Physiology

This subject focuses on understanding the relevance between living organisms in nature and physiological functions at a molecular level.

·Biochemistry Research I

This lecture focuses on studying the current experimental techniques in biochemistry area and apply to bio-pharmaceutical research.

·Biochemistry Research II

This lecture focuses on studying the advanced research report in biochemistry area and apply to bio-pharmaceutical research.

·Biotechnology Research I

This lecture focuses on studying the current experimental techniques in biotechnology area and apply to bio-pharmaceutical research.

·Biotechnology Research II

This lecture focuses on studying the advanced research report in biotechnology area and apply to bio-pharmaceutical research.

·Biopharmaceutical Research I

This lecture focuses on studying the current experimental techniques in biopharmaceutical science and apply to research and development.

·Biopharmaceutical Research II

This lecture focuses on studying the advanced research report in biopharmaceutical science and apply to research and development.

·Biochemistry Seminar I

This lecture focuses on studying the advanced research topics in biochemistry area and analyzed the key experimental method in order to perform creative research.

·Biochemistry Seminar II

This lecture focuses on studying the advanced research topics in biochemistry area related to the development of biopharmaceuticals and analyze the key experimental methods in order to perform creative research.

·Biotechnology Seminar I

This lecture focuses on studying the advanced research topics in biotechnology area and analyzed the key experimental method in order to perform creative research.

·Biotechnology Seminar II

This lecture focuses on studying the advanced research topics in biotechnology area related to the development of biopharmaceuticals and analyze the key experimental methods in order to perform creative research.

·Biopharmaceutical Seminar I

This lecture focuses on studying the advanced research topics in biotherapeutic science and analyzed the key experimental method in order to perform creative research.

·Biopharmaceutical Seminar II

This lecture focuses on studying the advanced research topics in biotechnology area related to the development of biopharmaceuticals such as therapeutic antibody, gene therapy or cell therapy and analyze the key experimental methods in order to perform creative research.

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