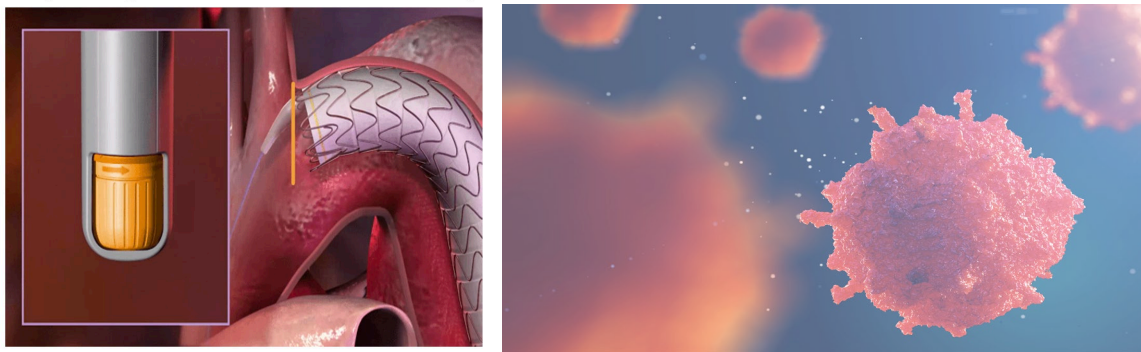


# BN5104 MODULE QUANTITATIVE PHYSIOLOGY PRINCIPLES IN BIOENGINEERING

## WHAT IS THIS MODULE ABOUT?

Welcome to this exciting graduate module, where you will become familiar with the three important systems in our body. They are the Cardiovascular, Respiratory, and Immune systems. The Cardiovascular lectures includes basic cardiac physiology, heart as a pump, to trends in cardiac engineering, and cardiomyocyte functions. For Respiratory lectures, you will learn some basic principles of respiratory physiology including breathing mechanism, lung compliance, gases exchange and more. Immune system covers important topics such as the innate and the adaptive immune systems, the complement systems, the various types of T-cells and their various functions, etc. Finally, the module will also cover our human body exercise physiology, looking at the basics understanding of cardiovascular and respiratory systems and how these systems adapt to exercises, mild, moderate, or intense, the utilization of fats and carbohydrates as fuel for the body etc.



## WHY YOU SHOULD CONSIDER THIS MODULE

In BN5104, you will be exposed to a diverse range of topics that will give you a sense of how researchers tackle problems at functional tissue and organ levels, which are based on the understanding of cellular and extra-cellular environments, and their inter-dependency of various systems in our body. To make the module more engaging, the class will be challenged with real-life clinically relevant topics where students will form group of 4-5 to come up with viable solutions to tackle these clinical unmet needs, and the team is expected to draft simple patent claims and invention disclosures to protect their inventions. The module assessments include group presentations, reports, and mid-term quizzes.



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