



<b>Course code</b>	PHM2004
<b>Course title (English)</b>	Principles of Pharmacology and Therapeutics
<b>Course title (Chinese)</b>	药理学和治疗学原理
<b>Units</b>	3 units (3 credit hours)
<b>Language of Instruction</b>	English
<b>Description (English)</b>	<p>This course is designed to provide the students the fundamental knowledge of the molecular mechanism of drug actions and the basic principles of pharmacology and therapeutics. Specifically, this course will focus on discussing representative drug targets (such as specific receptors and enzymes) and the concepts of drug potency, efficacy, specificity/selectivity, and dose-response relationships. A majority of the lecture hours will be devoted to introducing the pharmacological actions of major classes of clinically-used drugs and their mechanisms of actions. In addition, this course will briefly introduce the basic principles underlying the drug-based pharmacotherapies for human diseases.</p> <p>This course will adopt a combination of didactic and discussion formats, which aim to nurture the critical thinking skills of the students.</p>
<b>Description (Chinese)</b>	<p>本课程旨在让学生了解药物作用的分子机制和治疗学原理，将重点介绍不同疾病的主要药物及其作用靶点，以及药物效力、特异性和剂量反应关系的概念。此外，还将介绍药物治疗学基本原理。</p> <p>本课程将采用教学和讨论相结合的形式，旨在培养学生的批判性思维能力。</p>

### Learning Outcomes

Upon completion of this course, the students are expected to have a general understanding of the following topics:

1. The molecular basis of a drug's action in the body.
2. The concept of efficacy, potency, and specificity of a drug's action.
3. The dose-response relationship of a drug's action.
4. The concept of competitive and non-competitive antagonism of drug actions.
5. The pharmacological actions of representative drugs.
6. The metabolism of drugs.
7. The concept of pharmacokinetics and pharmacodynamics.
8. The basic concept of drug toxicology.
9. The general principles of therapeutics.



In addition, the students are also expected to improve critical thinking, problem solving and teamwork skills. By using “group presentation” format, the students will practice their team-work (group-work) and communication skills.

### **Indicative Teaching Plan**

<b>Weeks</b>	<b>Content / Topics / Activities (1.5 hours per session)</b>
1	Session 1. Principles of Drug Actions – I Session 2. Principles of Drug Actions – II
2	Session 3. Principles of Drug Actions – III Session 4. Principles of Drug Actions – IV
	Tutorial session 1 (1.5 hours per session)
3	Session 5. Drug Metabolism and Disposition Session 6. Toxicology and Drug Toxicity
4	Session 7. Drugs for Cardiovascular Diseases – I Session 8. Drugs for Cardiovascular Diseases – II
5	Session 9. Drugs for Cardiovascular Diseases – III Session 10. Drugs for Cardiovascular Diseases – IV
	Tutorial session 2 (1.5 hours per session)
6	Session 11. Review of Lectures and Q&A Session Session 12. Mid-Term Exam
7	Session 7. Drugs for Endocrine and Metabolic Diseases – I Session 8. Drugs for Endocrine and Metabolic Diseases – II
8	Session 9. Anti-Cancer Drugs – I Session 10. Anti-Cancer Drugs – II
	Tutorial session 3 (1.5 hours per session)
9	Session 13. Drugs for Infectious Diseases and Inflammation – I Session 14. Drugs for Infectious Diseases and Inflammation – II
10	Session 15. Drugs for Neurological Diseases – I Session 16. Drugs for Neurological Diseases – II
11	Session 17. Drugs for Digestive Diseases – I Session 18. Drugs for Digestive Diseases – II



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<b>12</b>	<b>Session 23. New Developments in Antibody and RNA Drugs – I</b> <b>Session 24. New Developments in Antibody and RNA Drugs – II</b>
	<b>Tutorial session 4 (1.5 hours per session)</b>
<b>13</b>	<b>Session 25. Principles of Therapeutics – I</b> <b>Session 26. Principles of Therapeutics – II</b>
<b>14</b>	<b>Final review</b>