Course description for Postgraduates, School of Basic Medicine

Course Title: Medical Molecular Biology		**Course Code:** 510.504
Course Category: □**High-level course** ■**international course** □**Advanced international courses** □**Common course**		
Course Type: □1st-level discipline basic courses ■2nd-level discipline basic courses □Optional professional courses		
The Methods of Assessment: Written examination		
Teaching Method: Theory taught	**Applicable Educational Level:** Master ■ Doctor □	
The Beginning of the Term:：The first semester	**Total Hours/Teaching Hours**: 40	**Credits**: 2.5
Applicable Specialty: Medical & Pharmacy		

Name of the Teachers of the Course Group	Professional Title	Major	Age	Academic Direction
Zuohua Feng	Professor	Biochemistry and Molecular Biology	59	Carcinogenesis & Chemoprevention
Feng Zhu	Professor	Biochemistry and Molecular Biology	46	Carcinogenesis & Cancer Prevention
Juan Chen	Professor	Biochemistry and Molecular Biology	46	the Molecular Mechanisms of AD & AD Prevention

Course Outline:

Aim of the Course

On the basis of the undergraduate course of medical molecular biology, we will introduce the monographic studies and the latest research on advances of medical molecular biology. Aim to improve the ability of the master's graduate program design and experimental technology.

Characteristics of the course and course content design

Medical Molecular Biology is an important basic subject，which theories and techniques penetrate into the various subject areas. The contents include 3 major parts: the basic principle of molecular biology, the main technical theory of molecular biology and medical research.

The basic theory section introduces the structure and function of genes and

genomes, and regulation of gene expression. This section focuses on the basic theoretical knowledge in order to achieve the theory of molecular biology applied to medical research for graduate students.

Technical theory section introduces the basic theory of main techniques of molecular biology, including amplification of nucleic acids *in vitro*, genetic engineering and nucleic acid hybridization. The aim is to make the graduate students better grasp and apply molecular biology techniques into the medical scientific experiments.

The section of molecular biology and medical research describes the relationship between genetic variation and disease, the significance of genome research in medicine, and the theory of gene diagnosis and gene therapy. This section focuses on the research ideas in the medical molecular biology field. Improve the ability of the graduate students to solve problems in their research projects.

Teaching methods： Theory Teaching, Seminars, PowerPoint

Learning content and teaching arrangements (40h):

Introduction & Gene	2h
Structure and Function of Genomes	4h
Regulation of Gene Expression	6h
Genetic Engineering	6h
PCR	4h
Nucleic Acid Hybridization	3h
Gene and Disease	3h
Gene Diagnosis and Gene Therapy	4h
Genomics and proteomics	4h
RNA World	4h

Guide Books:

Medical Molecular Biology, Self-Edition

Seminars & References

Main Reference Books:

1. *Principles and Techniques of Biochemistry and Molecular Biology*, seventh edition, Edited by Keith Wilson.

2. *Basics of Medical Molecular Biology*, Edited by Tarek H. El-Metwally3.