



<b>Course code</b>	BIO2101 (original code: BIO2032)
<b>Course title (English)</b>	Comprehensive Biology Laboratory
<b>Course title (Chinese)</b>	综合生物学实验
<b>Units</b>	3
<b>Language of Instruction</b>	English
<b>Description (English)</b>	BIO2101 is a laboratory course which provides hand-on training in current cell biological methods such as microscopy, animal cell culture, cell adhesion, cell fractionation, PCR, SDS-PAGE and immunostaining.
<b>Description (Chinese)</b>	BIO2101 是一门基础生物实验课程，将培养学生在生物实验中实际动手操作能力，包括显微镜使用、动物细胞培养、细胞器分离，PCR，SDS-PAGE，免疫染色、小动物解剖等技术。

### **Learning Outcomes**

At the end of this course students will demonstrate a working knowledge of animal cell culture techniques, cell adhesion, cell fractionation, PCR, SDS - PAGE and immunostaining. Students will demonstrate competence with scientific writing and critical thinking by reporting their experimental results in a form of research paper.

### **Indicative Teaching Plan**

<b>Week</b>	<b>Content/ topic/ activity</b>
1	Course introduction
2	Introduction to microscopy
3	Animal cell culture-1
4	Animal cell culture-2
5	Activation of beta-galactosidase gene in the Transformed <i>E.coli</i>
6	Polymerase chain reaction (PCR) replication of b-galactosidase gene <i>LacZ</i> and gel electrophoresis verification
7	Cell fractionation by differential centrifugation
8	Identification of Mitochondrial Fraction
9	Quantification of total proteins in animal cell lysates
10	Analysis of proteins by electrophoresis
11	Rat anatomy