

Lecture Outline for “Experimental Approaches in Molecular and Cell Biology”

<b>Topic:</b>	Model Organism: <i>Drosophila</i>
<b>Lecture:</b>	Dr. Ya-Hui Chou
<b>Course Outline:</b>	<ul style="list-style-type: none"><li>I. Genetics on the fly<ul style="list-style-type: none"><li>1. Life Cycle</li><li>2. Genome feature</li><li>3. Basic fly genetics</li><li>4. Database</li></ul></li><li>II. Genetic screens<ul style="list-style-type: none"><li>1. Basic forward genetic screen</li><li>2. Enhancer and suppressor screen ("modifier")</li><li>3. Mapping mutations identified in mutagenesis screens</li><li>4. Genome-wide RNAi screen</li></ul></li><li>III. Powerful <i>Drosophila</i> genetic tool kits<ul style="list-style-type: none"><li>1. The UAS-GAL4 system</li><li>2. FRT-FLP system</li><li>3. MARCM</li><li>4. Temporal regulation of gene expression</li></ul></li><li>IV. Fly as a disease model and advance technique model<ul style="list-style-type: none"><li>1. Cancer: tumor suppressor genes</li><li>2. Cardiac function</li><li>3. Neurodegeneration</li><li>4. Fly in AI: olfactory virtual reality</li></ul></li></ul>