

# 课程大纲

## COURSE SYLLABUS

1.	<b>课程代码/名称</b> <b>Course Code /Title</b>	BIO5010 科学实践训练 Scientific practice training
2.	<b>课程性质</b> <b>Compulsory/Elective</b>	选修 Elective
3.	<b>课程学分/学时</b> <b>Course Credits/Hours</b>	3/96 秋季、春季学期都开设，开设时间为一学期，至少 96 学时，具体由导师和研究生协商决定。 Course will open on spring and fall semester, a whole semester will last, at least 96 hours, details will be decided by teacher and students.
4.	<b>授课语言</b> <b>Teaching Language</b>	中英文 Chinese and English
5.	<b>授课教师</b> <b>Instructor(s)</b>	郭红卫及研究生指导教师 Hongwei Guo and numerous PIs
6.	<b>先修要求</b> <b>Pre-requisites</b>	None (无)

### 7. 教学目标 Course Objectives

科学实践训练课程的核心目的是作为研究生基础理论知识学习和毕业课题研究之间的有机衔接，旨在提高研究生实践动手和科研创新等综合科研能力，帮助新入学的研究生更快的完成身份转换，尽快投入到科研工作中去。

该课程将会把生物基础理论知识与实验室科研实践紧密联系，一方面促进学生在实践中深化对基础理论的理解，提高对课程体系中基础理论课程的感性认识，提高学生对生命现象、机理机制的探索兴趣；另一方面，用理论指导实践创新，努力提高研究生的创新探索精神。

The central aim of Scientific Practice Training Course is to act as an efficient connection between knowledge studying of text book to real dissertation research. This course will enhance abilities of real practice and research creativity for graduate students, helping junior graduate students fast accommodating to the role of real scientific research practice.

This course will join the basic biology knowledge to research practice in laboratory, boosting the understanding to basic theory, enhancing the perceptual knowledge to basic theory during systematic course study, improve the interesting of exploring biology phenomenon, theory and mechanism. Meanwhile, this course will guide the creativity through knowledge, inspiring the creativity and exploring spirit of graduate

	student.
8.	<b>教学方法 Teaching Methods</b>
	<p>所在学科没有相似的课程。该课程作为实践训练，首先可以通过大量系统反复的实验过程巩固研究生的基础理论知识和实验操作技能；其次，该课程将有效的提高研究生根据不同研究目的进行实验设计和优化的能力；最后，该课程将帮助研究生建立对优劣科研实践的判断能力并循序渐进地提高研究生自身的科学思维能力，包括批判思维、逻辑推断、合理假设等。</p> <p>科学实践训练将有助于每个研究生在进入自己的课题前有足够的时间去了解 and 接触生物学研究，理解生物学研究中会用到的主要思路、方法、和手段。鼓励学生在进入实验室的初期就带着科研问题去做研究，尽快培养提高研究生独立思考问题和设计实验的能力和意识。</p> <p>No similar course was provided in this discipline. As a practising course, considerable and repetitious experiment practice will consolidate the fundamental knowledge and laboratoristic operation skills. Furthermore, this course will advance the ability of experimental design and optimization based on diverse research purpose. This course will establish the criticizing oriented thinking to excellent or poor academic research practice, including the improvement of self scientific thinking which includes judgement thinking, logical prediction and reasonable assumption, etc.</p> <p>Scientific practical training will provide sufficient time for every graduate student to get in real engagement of biological academic research before their choosing of dissertation project, understanding the popular idea, methods and strategies in biology research. Encouraging student join the laboratory with academic questions at beginning, fast training the ability and the sense of individual thinking and experiment design for graduate students.</p>
9.	<b>教学内容 Course Contents</b>
	<p>教学内容：在每个学生选定该课程之后，研究生指导教师对学生的理论知识基础和研究经历做出初步评估，并结合实验室研究方向与学生的学习兴趣提出一个初步的研究意向，并指导学生就此意向进行有效的文献调研工作，调研后学生与导师协商确定立项，立项后，在研究生指导教师的指导下，每个研究生开展具体的实验工作，完成相关领域的文献追踪阅读和实验技能巩固并定期向导师汇报项目进展情况。在学期末提交一份项目结题报告，报告应同时包括相关领域研究进展及研究生本人的研究结果。</p> <p>学时分配：秋季、春季学期都开设，开设时间为一学期，至少 96 学时，具体由导师和研究生协</p>

	<p>商决定，每位研究生最多只能选修一次本课程。</p> <p>Course contents: After the student course selection, teacher will preliminarily evaluate the fundamental knowledge and research experience levels of students, then an initiative research topic will be provided by teach based on current research project in lab and student research interesting, students will be guided to exploring relative publications. After that, student will discuss with teacher and determine their research topic, based on the topic, students will carry out related research and experiments with the guide from teacher. The students need to search and follow publications in journal papers and report the progress of projects to teacher. At the end of semester, a research report from student will need to send to teacher, the report will need to include the introduction of progress in related research field and the results or conclusions form the student.</p> <p>Course arrangement: course will open on sprint and fall semester, a whole semester will last, at least 96 hours, details will be decided by teacher and students.</p>
<b>10.</b>	<b>课程考核 Course Assessment</b>
	<p>课程考核：根据学生提交的项目结题报告书和平时在实验室动手实践的具体表现，由每个实验室的导师给与“通过/不通过”的评价。</p> <p>Course assessment, based on project report and common performance in the lab, each student’ s advisor will give a pass or fail to assess the course grade.</p>
<b>11.</b>	<b>教材及其它参考资料 Textbook and Supplementary Readings</b>
	<p>每个导师将根据实验室和学生的具体情况来安排相关的科研文献和实验技能培训。</p> <p>Teachers will arrange journal paper reading and experiment technical training based on situations in lab and student conditions.</p>