Syllabus

Course: PCB4460- Precision Modeling of Human Genetics Diseases in the Model Organisms.
Date: March 22nd to April 24th, 2024
Time and Location: TBA
Contact information: Dr. Xiaofei Bai
Email: baixiaofei@ufl.edu
Office hours: CGRC Room 438 by appointment

Introduction

Welcome to the immersion course. This section will provide hands-on experiences using the nematode model system *Caenorhabditis elegans,* which contains approximately 3000 disease-associated genes. You will receive instruction on designing and applying the novel and powerful gene-editing technique CRISPR/Cas9, focusing on establishing precision disease modeling in *C. elegans*.

What will you learn when finishing the course?

1) Basic molecular biology techniques, including PCR, restriction enzyme digestions, and electrophoresis.
2) Basic strategies to design CRISPR/Cas9 gene editing.
3) The *C. elegans* maintenance and operation.

What will you need for the class?

The course will be textbook-free. However, it will be helpful if you can read the literature below before attending the classes. Download the literature using the UF network.

http://www.wormbook.org/chapters/www_strainmaintain/strainmaintain.html
https://www.sciencedirect.com/science/article/pii/S1046202316302857?via%3Dihub

Learning assessment during the class.

1) **Participation and discussion:** the class attendees will be requested to actively participate for all class activities and meetings.
2) **Exam:** There will be no exam for the course. However, everyone will be requested to submit a final report by the end of the course, including your CRISPR/Cas9 design and final data.
3) **Presentation:** You will give a final presentation in your project groups at the end of the classes.

Grade components and scale:
The participation of the class: 20% of the total grade
Final report: 50% of the total
Presentation: 30% of the total grade.

Scale: A ≥ 90.00%; A- ≥ 86.66%; B+ ≥ 83.33%; B ≥ 80.00%; B- ≥ 76.66%; C+ ≥ 73.33%; C ≥ 70.00%; C- ≥ 66.66%; D+ ≥ 63.33%; D ≥ 60.00%; D- ≥ 56.66%; F < 56.66%

Illness and unforeseen things will be excused to miss the class. However, proper documentation will be required to explain the absence. You can find UF policy for excused absence here: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Academic honesty
Any cheating, plagiarism, or other forms of academic dishonesty will result in a 0 grade. For additional information on Academic Honesty, please visit the UF Student Honor Code and Student Conduct Code at https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/

If you have any questions, concerns, or comments on the course, please feel free to contact me by email baixiaofei@ufl.edu or by phone 352-294-8447.

Schedule

Date	Time	
Fri Mar 22nd to Apr 5th.	9 am to 12 pm	Location is TBA Course introduction and discussion Introduction of disease modeling in the model systems Introduction of *C. elegans* biology and genetics
Fri Mar 22nd to Apr 5th.	1 pm to 5 pm	Location is TBA *C. elegans* maintenance and operation
Fri Apr 8th to Apr 22nd.	9 am to 12 pm	Location is TBA CRISPR/Cas9 gene editing introduction and designing
Fri Apr 8th to Apr 22nd.	9 am to 12 pm	Location is TBA Genotyping CRISPR edited animals and phenotype the *C. elegans*.
Apr 23rd to 24th	9 to 12 pm and 1-5 pm	Location is TBA Last presentations.
Apr 28th	Deadline to submit the final report.	

Note: There will be no lecture classes on weekends, but the students will be approved and get access to the lab by maintaining the *C. elegans* or performing experiments if needed.